

Atlantic Richfield Company

Anthony R. Brown **Project Manager Mining**

4 Centerpointe Drive La Palma, CA 90623-1066 Office: (714) 228-6770

Fax: (714) 228-6749 E-mail: Anthony.Brown@bp.com

June 12, 2013

Mr. Steven Way On-Scene Coordinator Emergency Response Program (8EPR-SA) U.S. EPA, Region 8 1595 Wynkoop Street Denver, CO 80202-1129

St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test RE:

Construction and Pre-Implementation Report

Rico-Argentine Mine Site - Rico Tunnels, Operable Unit 0U01

Dolores County, Colorado

Dear Mr. Way:

On behalf of Atlantic Richfield Company (Atlantic Richfield), please find enclosed the St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Construction and Pre-Implementation Report (Construction Report) prepared for the Rico-Argentine Mine Site (site). This Report documents construction of the pilot scale passive treatment system described in the St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Work Plan dated August 29, 2012. This work was completed pursuant to requirements in Task F - Water Treatment System Analysis and Design / Subtask F2 - Treatment System Conceptual Designs and Additional Investigations of the Remedial Action Work Plan accompanying the Unilateral Administrative Order for Removal Action, Rico-Argentine Site, Dolores County, United States Environmental Protection Agency, Region 8, (U.S. EPA), dated March 9, 2011 (Docket No. 08-2011-0005).

If you have any questions regarding this Report or the work completed, please feel free to contact me at (714) 228-6770 or via e-mail at Anthony.Brown@bp.com.

Sincerely.

Tony Brown

Project Manager Mining Atlantic Richfield Company

and a Bone

St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Construction Enclosures:

and Pre-Implementation Report

Terry Moore, Atlantic Richfield Company (via e-mail) CC:

Shella D'Cruz, Atlantic Richfield Company (via e-mail)

Reginald Ilao, Atlantic Richfield Company (via e-mail and hardcopy)

Adam Cohen, Esq., Davis Graham & Stubbs, LLP (via e-mail)

Tom Kreutz, AECOM Technical Services, Inc. (via e-mail)



Mr. Steven Way U.S. EPA Region 8 June 12, 2013 Page 2 of 2

Doug Yadon, AECOM Technical Services, Inc. (via e-mail)
Sandy Riese, EnSci, Inc. (via e-mail)
Chris Sanchez, Anderson Engineering Company, Inc. (via e-mail)
Dave McCarthy, Copper Environmental Consulting, LLC (via e-mail)
Marc Lombardi, AMEC Environment & Infrastructure, Inc. (via e-mail)
Kristine Burgess, AEEC, LLC (via e-mail)
Jan Christner, URS Operating Services, Inc. (via e-mail)



ST. LOUIS TUNNEL DISCHARGE CONSTRUCTED WETLAND PILOT SCALE TEST CONSTRUCTION AND PRE-IMPLEMENTATION REPORT

Rico Argentine Mine Site – Rico Tunnels Operable Unit OU01 Dolores County, Colorado

Prepared for:
Atlantic Richfield Company
La Palma, California

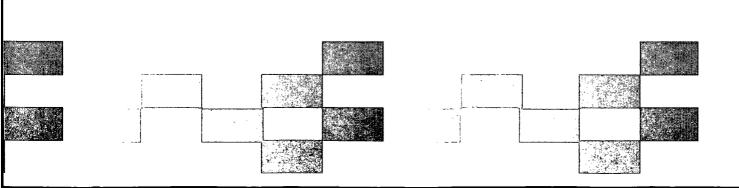
Prepared by:

AMEC Environment & Infrastructure, Inc.

Rancho Cordova, California

June 2013

Project SA11161314





APPENDIX D

Colorado State Electrical Board Permit Number 731334



COLORADO STATE ELECTRICAL BOARD **ELECTRICAL PERMIT NUMBER: 731334**

Date Paid: 05-NOV-12

Expires On: 05-NOV-13

For inspections, click the 'Request Inspection' link on the permit list screen

GARY ALPHONSE THIAVILLE STURGEON ELEC CO INC 12150 E 112TH AVE HENDERSON, CO 80640

Registration Number: 3

Trim Permit: N

Daytime Phone: (303) 286-8000

FAX: ()-

Power Supplier: SAN MIGUEL POWER

Owner Name: RICO ARGENTINE MINE SITE

RICO ARGENTINE MINE

SITE

Address: 1 SOUTH GLASGOW City: RICO, CO. 81332

COMMERCIAL NEW

Driving Directions: Call Rod Engel 720-215-7085

Brief Description: Set 3 poles for power to new service for heat trace

Inspector: Gary Freeman Cost of work: \$52,000.00 855-451-9794

Fee Amount: \$620.00

Paid

COLORADO STATE ELECTRICAL BOARD DEPARTMENT OF REGULATORY AGENCIES 1560 Broadway, Suite 1500

Denver, Colorado 80202 Phone: (303) 894-2985

Colorado The Official State Web Portal



Division of Professions and **Occupations**



Electrical and Plumbing Permits Online

State of Colorado

Electrical and Plumbing permit search results.

Permit Number: 731334

Address: 1 South Glasgow

County: Dolores

Job Description: Private Property

City: Rico

Permit Type: ELECTRICAL

Permit Status: CLOSED

Building Type: COMMERCIAL

Issue Date: 05-NOV-12

Misc: COMMERCIAL NEW

Last Inspection Performed:

Construction Type: NEW

E FINAL COMP - ACCEPTED

Trim: N

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Cancel

* Questions? Check out the **Definitions Page** or **Frequently Asked Questions (FAQ)**.

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E-Mail the <u>Division of Professions and Occupations</u> 1560 Broadway, Suite 1500

Denver, CO 80202

(303) 894-2300 - Phone (303) 894-2310 - Fax

Relay Colorado

(TTY (English & Spanish), Voice, VCO, ASCII, STS Assistance Numbers)



COLORADO STATE ELECTRICAL BOARD ELECTRICAL PERMIT NUMBER: 732099

Date Paid: 20-NOV-12

Expires On: 20-NOV-13

For inspections, click the 'Request Inspection' link on the permit list screen

GARY ALPHONSE THIAVILLE STURGEON ELEC CO INC 12150 E 112TH AVE HENDERSON, CO 80640

Registration Number: 3

Trim Permit: N

Daytime Phone: (303) 286-8000

FAX:

Power Supplier: SAN MIGUEL POWER

Owner Name: RICO ARGENTINE MINE SITE

RICO ARGENTINE MINE

SITE

Address: 1 SOUTH GLASGOW City: RICO, CO. 81332

COMMERCIAL NEW

Driving Directions: Call Mike Lagage for directions 303-591-2925

Brief Description: Install new service lime building

Inspector: Gary Freeman Cost of work: \$5,500.00

855-451-9794

Fee Amount: \$160.00

Paid

COLORADO STATE ELECTRICAL BOARD DEPARTMENT OF REGULATORY AGENCIES 1560 Broadway. Suite 1500 Denver, Colorado 80202 Phone: (303) 894-2985

Colorado The Official State Web Portal



Division of Professions and Occupations



Electrical and Plumbing Permits Online

State of Colorado

Electrical and Plumbing permit search results.

Permit Number: 732099

Address: 1 South Glasgow

County: Dolores

Job Description: Private Property

City: Rico

Permit Type: ELECTRICAL Is:

Issue Date: 20-NOV-12

Permit Status: CLOSED

Building Type: COMMERCIAL

Construction Type: NEW

Misc: COMMERCIAL NEW

Last Inspection Performed:

E_FINAL_COMP - ACCEPTED

Trim: N

Back to Search

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Cancel

* Questions? Check out the <u>Definitions Page</u> or <u>Frequently Asked Questions (FAQ)</u>.

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Relay Colorado

(TTY (English & Spanish), Voice, VCO, ASCII, STS Assistance Numbers)





APPENDIX E

Laboratory Analytical Reports





November 05, 2012

Lynda Lombardi AMEC Environmental & Infrastructure, Inc. 10670 White Rock Road Suite 100 Rancho Cordova, CA 95670

RE: Project: RICO ARGENTINE MINE SITE

Pace Project No.: 60131706

Dear Lynda Lombardi:

Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 2012. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Obstators m. Wilson

Heather Wilson

heather.wilson@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219 A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 102885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification:#: 03055 Nevada Certification:#: KS000212008A Oklahoma Certification:#: 9205/9935 Texas Certification #: T104704407-12-3 Utah Certification #: KS000212012-2





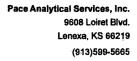
SAMPLE SUMMARY

Project:

RICO ARGENTINE MINE SITE

Pace Project No.: 60131706

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60131706001	SLSWP110UT121018	Water	10/18/12 13:55	10/22/12 10:20





SAMPLE ANALYTE COUNT

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60131706001	SLSWP110UT121018	EPA 200.7	TDS	5
		EPA 200.7	TDS	5
		EPA 200.8	JGP, SMW	18
		EPA 200.8	JGP, SMW	18
		SM 2320B	DJR	4
		SM 2540D	FJF	1
		EPA 300.0	AJM	1



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 200.7

Description: 200.7 Metals, Total

Client:

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20131

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60131762003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1085508)
 - Calcium
- MSD (Lab ID: 1085509)
 - Calcium

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20131

- B: Analyte was detected in the associated method blank.
 - SLSWP11OUT121018 (Lab ID: 60131706001)
 - Potassium

Page 5 of 27



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 200.7

Description: 200.7 Metals, Dissolved

Client:

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20130

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60131762003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1085501)
 - Calcium, Dissolved
- MSD (Lab ID: 1085502)
 - · Calcium, Dissolved

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20130

B: Analyte was detected in the associated method blank.

- SLSWP110UT121018 (Lab ID: 60131706001)
 - · Potassium, Dissolved

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 200.8

Description: 200.8 MET ICPMS

Client:

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60131762003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1085517)
 - Manganese

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20133

B: Analyte was detected in the associated method blank.

- SLSWP110UT121018 (Lab ID: 60131706001)
 - Barium
 - Thallium

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 200,8

Description: 200.8 MET ICPMS

Client:

BP AMEC

Date:

November 05, 2012

Analyte Comments:

QC Batch: MPRP/20133

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11OUT121018 (Lab ID: 60131706001)
 - Silver
 - Arsenic
 - Chromium
 - Selenium



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 200:8

Description: 200.8 MET ICPMS, Dissolved

Client:

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20132

B: Analyte was detected in the associated method blank.

- SLSWP110UT121018 (Lab ID: 60131706001)
 - · Barium, Dissolved
 - · Thallium, Dissolved

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP110UT121018 (Lab ID: 60131706001)
 - Aluminum, Dissolved
 - · Arsenic, Dissolved
 - Beryllium, Dissolved
 - · Chromium, Dissolved
 - · Lead, Dissolved
 - · Selenium, Dissolved

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

BP AMEC

Date:

November 05, 2012

Analyte Comments:

QC Batch: MPRP/20200

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11OUT121018 (Lab ID: 60131706001)
 - · Silver, Dissolved



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

SM 2320B **Description: 2320B Alkalinity**

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

SM 2540D

Description: 2540D Total Suspended Solids

OM ZOTOD

Client:

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Method:

EPA 300.0

Description: 300.0 IC Anions 28 Days

Client:

BP AMEC

Date:

November 05, 2012

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



ANALYTICAL RESULTS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.: 6

60131706

Sample: SLSWP110UT121018	Lab ID: 60131706001	Collected	: 10/18/12	13:55	Received: 10/	22/12 10:20 M	atrix: Water	
D	Danish 11-11-	Report	MOS	DE	5	A	04044	
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
200.7 Metals, Total	Analytical Method: EPA 2	00.7 Prepar	ration Metho	d: EP/	A 200.7			
Calcium	226000 ug/L	100	35.8	1	10/23/12 18:00	10/25/12 11:18	7440-70-2	
ron	3240 ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 11:18	7439-89-6	
Magnesium	20300 ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 11:18	7439-95-4	
Potassium	62300 ug/L	500	64.1	1	10/23/12 18:00	10/25/12 11:18	7440-09-7	B [.]
Sodium	11800 ug/L	500	40.1	1	10/23/12 18:00	10/25/12 11:18	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: EPA 2	00.7 Prepar	ration Metho	d: EP/	A 200.7			
Calcium, Dissolved	215000 ug/L	100	35,8	1	10/23/12 18:00	10/25/12 10:41	7440-70-2	
ron, Dissolved	ND ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 10:41	7439-89-6	
Magnesium, Dissolved	19400 ug/L	50.0	17.2	1	10/23/12 18:00	10/25/12 10:41	7439-95-4	
Potassium, Dissolved	60400 ug/L	500	64.1	1	10/23/12 18:00	10/25/12 10:41	7440-09-7	B:
Sodium, Dissolved	11400 ug/L	500	40.1	1	10/23/12 18:00	10/25/12 10:41	7440-23-5	
200.8 MET ICPMS	Analytical Method: EPA 2	00.8 Prepar	ation Metho	d: EP/	A 200.8			
Aluminum	190J ug/L	250	26.0	5	10/23/12 18:00	10/29/12 11:51	7429-90-5	
Antimony	0:65J ug/L	5.0	0.18	5	10/23/12 18:00	10/27/12 15:17	7440-36-0	
rsenic	ND ug/L	5.0	0.70	:5	10/23/12 18:00	10/24/12 14:39	7440-38-2	D3
Barium	101 ug/L.	5.0	0.42	5	10/23/12 18:00	10/27/12 15:17	7440-39-3	B.
Beryllium	0.34J ug/L	2,5	0.33	5	10/23/12 18:00			
Cadmium	13.3 ug/L	2.5	0.48	5	10/23/12 18:00	10/24/12 14:39	-	
Chromium	ND ug/L	5.0	0.55	5	10/23/12 18:00	10/24/12 14:39		D3
Cobalt	1.9J ug/L	5.0	0.24	5	10/23/12 18:00	10/24/12 14:39		
Copper	42.7 ug/L	5:0	2.2	5	10/23/12 18:00	10/24/12 14:39		
ead	4.9J ug/L	5.0	0.26	5	10/23/12 18:00	10/24/12 14:39		
/langanese	1430 ug/L	5.0	1.2	5	10/23/12 18:00	10/24/12 14:39		
//olybdenum	14.5 ug/L	5:0	0.80	5	10/23/12 18:00	10/29/12 11:51	_	
lickel	2.5J ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 14:39		
Selenium	ND ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 14:39		D3
Silver	ND ug/L	2.5	0.30	5 5	10/23/12 18:00	10/24/12 14:39		D3
inver Thallium	•		0.30 0.11	5 5				D3 В
nallium /anadium	1.8J ug/L ND ug/L	5:0 5:0	0.11 1.4	5 5	10/23/12 18:00 10/23/12 18:00	10/27/12 15:17 10/27/12 15:17		D
inc	2520 ug/L	50:0	8.0	:5 5	10/23/12 18:00	10/27/12 15:17	. •	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 2	-						
Aluminum, Dissolved	ND ug/L	250	26.0	5	10/23/12 18:00	10/29/12 12:28	7429-90-5	D3
Antimony, Dissolved	1.1J ug/L	5.0	0.18	-5	10/23/12 18:00			
Arsenic, Dissolved	ND ug/L	5.0	0.70	5	10/23/12 18:00			D3
Barium, Dissolved	95.4 ug/L	5.0	0.42	:5	10/23/12 18:00	10/27/12 14:40		В
Beryllium, Dissolved	ND ug/L	2.5	0.33	5	10/23/12 18:00	10/24/12 15:16		D3
Cadmium, Dissolved	8.8 ug/L	2.5	0.33	5	10/23/12 18:00	10/24/12 15:16		<i>D</i> 3
Chromium, Dissolved	ND ug/L	5.0	0.55	-5	10/23/12 18:00	10/24/12 15:16		D3
Cobalt, Dissolved	1.9J ug/L		0.55	5 5				D3
Copper, Dissolved	· ·	5.0 5.0			10/23/12 18:00	10/24/12 15:16		
• • •	ND ug/L	5:0	2.2	5	10/23/12 18:00	10/24/12 15:16		Do
Lead, Dissolved	ND ug/L	5.0	0.26	5	10/23/12 18:00	10/24/12 15:16		D3
Manganese, Dissolved	1340 ug/L	5:0	1:2	5	10/23/12 18:00	10/24/12 15:16		
Molybdenum, Dissolved	17,3 ug/L	5.0	0.80	5	10/23/12 18:00	10/29/12 12:28	7439-98-7	

Date: 11/05/2012 10:11 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

Sample: SLSWP110UT121018	Lab ID: 60131706001	I Collecte	d: 10/18/12	2 13:55	Received: 10/	22/12 10:20 Ma	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved	Analytical Method: EPA	200.8 Prepa	aration Meth	od: EP/	A 200.8			
Nickel, Dissolved	2:0J ug/L	5.0	1.8	-5	10/23/12 18:00	10/24/12 15:16	7440-02-0	
Selenium, Dissolved	ND ug/L	5.0	1.8	5	10/23/12 18:00	10/24/12 15:16	7782-49-2	D3
Silver, Dissolved	ND ug/L	2.5	0.30	5	10/26/12 17:30	10/30/12 18:26	7440-22-4	D3
Thallium, Dissolved	2.2J ug/L	5.0	0.11	-5	10/23/12 18:00	10/27/12 14:40	7440-28-0	В
Vanadium, Dissolved	ND ug/L	5.0	1,4	5	10/23/12 18:00	10/27/12 14:40	7440-62-2	
Zinc, Dissolved	1640 ug/L	50.0	8.0	5	10/23/12 18:00	10/24/12 15:16	7440-66-6	
2320B Alkalinity	Analytical Method: SM 2	2320B						
Alkalinity,Bicarbonate (CaCO3)	113 mg/L	20.0	1,2	1		10/24/12 12:53		
Alkalinity, Carbonate (CaCO3)	ND mg/L	20.0	1.2	1		10/24/12 12:53		
Alkalinity, Hydroxide (CaCO3)	ND mg/L	20.0	1.2	1		10/24/12 12:53		
Alkalinity, Total as CaCO3	113 mg/L	20.0	1,2	1		10/24/12 12:53		
2540D Total Suspended Solids	Analytical Method: SM 2	2540D						
Total Suspended Solids	7,0 mg/L	5.0	5.0	1		10/25/12 10:28		
300.0 IC Anions 28 Days	Analytical Method: EPA	300.0						
Sulfate	652 mg/L	50:0	6.0	50		10/28/12 14:42	14808-79-8	





Project:

Calcium

Magnesium

Potassium

Sodium

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

MPRP/20131

Analysis Method:

EPA 200.7

QC Batch Method:

EPA 200.7

Analysis Description:

200.7 Metals, Total

Associated Lab Samples:

60131706001

Matrix: Water

Associated Lab Samples:

METHOD BLANK: 1085506

Parameter

60131706001

Units

ug/L ug/L

ug/L

ug/L

ug/L

;	Blank Result	Reporting Limit	Analyzed	Qualifiers
	ND	100	10/25/12 10:48	
	ND	50:0	10/25/12 10:48	
	ND	50.0	10/25/12 10:48	
	236J	500	10/25/12 10:48	
	ND	500	10/25/12 10:48	

LABORATORY CONTROL SAMPLE: 1085507 LCS **Spike** LCS % Rec Parameter Units Result % Rec Limits Qualifiers Conc. Calcium ug/L 10000 9320 85-115 93 9440 Iron ug/L 10000 94 85-115 ug/L Magnesium 10000 9110 91 85-115 **Potassium** 10000 9500 85-115 ug/L 95 Sodium ug/L 10000 9720 97 85-115

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 10855	08		1085509							
	60	131762003	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Calcium	ug/L	209000	10000	10000	229000	227000	208	185	70-130	1	9	M1
Iron	ug/L	3670	10000	10000	13400	13400	97	97	70-130	0	10	
Magnesium	ug/L	18100	10000	10000	29000	28800	110	107	70-130	1	9	
Potassium	ug/L	61100	10000	10000	73100	72800	120	117	70-130	0	7	
Sodium	ug/L	11100	10000	10000	21800	21800	107	107	70-130	0	8	





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

MPRP/20130

Analysis Method:

EPA 200.7

QC Batch Method:

EPA 200.7

Analysis Description:

200.7 Metals, Dissolved

Associated Lab Samples:

60131706001

METHOD BLANK: 1085499

Matrix: Water

Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND	100	10/25/12 10:18	
Iron, Dissolved	ug/L	ND	50,0	10/25/12 10:18	
Magnesium, Dissolved	ug/L	ND	50.0	10/25/12 10:18	
Potassium, Dissolved	ug/L	186J	500	10/25/12 10:18	
Sodium, Dissolved	ug/L	ND	500	10/25/12 10:18	

LABORATORY CONTROL SAMPLE	: 1085500					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	9380	94	85-115	
Iron, Dissolved	ug/L	10000	9400	94	85-115	
Magnesium, Dissolved	ug/L	10000	9080	91	85-115	
Potassium, Dissolved	ug/L	10000	9400	94	85-115	
Sodium, Dissolved	ug/L	10000	9620	96 [.]	85-115	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 10855	01		1085502							
Parameter	60° Units	131762003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	%:Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	ug/L	215000	10000	10000	217000	216000	22	14	70-130	0	9	M1
Iron, Dissolved	ug/L	221	10000	10000	9620	9420	94	92	70-130	2	10	
Magnesium, Dissolved	ug/L	18100	10000	10000	26400	26800	83	87	70-130	2	.9	
Potassium, Dissolved	ug/L	62300	10000	10000	69600	69600	73	73	70-130	0	7	
Sodium, Dissolved	ug/L	11300	10000	10000	20900	20900	96	96	70-130	0	8	





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

MPRP/20133

Analysis Method:

EPA 200.8

QC Batch Method: Associated Lab Samples:

EPA 200.8 60131706001 Analysis Description:

200.8 MET

METHOD BLANK: 1085514

Matrix: Water

Associated Lab Samples:

60131706001

Parameter	Units	:Blank Result	Reporting Limit	Analyzed	Qualifiers
luminum	ug/L	ND ND	50.0	10/29/12 11:43	
ntimony	ug/L	ND	1.0	10/27/12 14:49	
rsenic	ug/L	ŅD	1.0	10/24/12 14:11	
arium	ug/L	0.26J	1.0	10/27/12 14:49	
eryllium	ug/L	ND	0.50	10/24/12 14:11	
admium	ug/L	ND	0:50	10/24/12 14:11	
hromium	ug/L	ND	1.0	10/24/12 14:11	
obalt	ug/L	ND	1.0	10/24/12 14:11	
opper	ug/L	ND	1.0	10/24/12 14:11	
ead	ug/L	ND	1.0	10/24/12 14:11	
langanese	ug/L	ND	1.0	10/24/12 14:11	
lolybdenum	ug/L	ND	1.0	10/29/12 11:43	
lickel	ug/L	ND	1.0	10/24/12 14:11	
elenium	ug/L	ND	1.0	10/24/12 14:11	
hallium	ug/L	0.35J	1.0	10/27/12 14:49	
anadium	ug/L	ND	1.0	10/27/12 14:49	
inc	ug/L	ND	10.0	10/24/12 14:11	

ABORATORY CONTROL SAMPLE:	1085515					
- •		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Aluminum	ug/L	1000	969	97	85-115	=
ntimony	ug/L	40	40.7	102	85-115	
rsenic	ug/L	40	40.2	100	85-115	
arium	ug/L	40	39.3	98	85-115	
eryllium	ug/L	40	.39.9	100	85-1/15	
admium	:ug/L	40	41.0	103	85-115	
romium	'ug/L	40	41.2	103	85-115	
balt	ug/L	40	39.4	99	85-115	
pper	ug/L	40	39.6	99	85-115	
ad	ug/L	40	39.8	100	85-115	
anganese	ug/L	40	40.9	102	85-115	
olybdenum	ug/L	40	39.7	99	85-115	
ckel	ug/L	40	39.8	100	85-115	
elenium	ug/L	40	41.1	103	85-115	
nallium	ug/L	40	38.8	97	85-115	
anadium	ug/L	40	39.9	100	85-115	
inc	ug/L	100	11.0	110	85-115	

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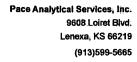
Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 10855	16		1085517							
	60	131762003	MS Spike	MSD Spike	MS	MSD	MS	MSD.	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Aluminum	ug/L	171J	1000	1000	1110	1060	94	89	70-130		20	
Antimony	ug/L	ND	40	40	41.2	40.8	103	102	70-130	1	20	
Arsenic	ug/L	ND	40	40	41.6	41.2	103	102	70-130	1	20	
Barium	ug/L	20.8	40	40	59.9	59.6	98	97	70-130	1	20	
Beryllium	ug/L	0.58J	40	40	39.8	39.4	98	97	70-130	1	20	
Cadmium	ug/L	15.4	40	40	55.4	56,6	100	103	70-130	2	20	
Chromium	ug/L	ND	40	40	40.8	39.6	102	99	70-130	3	20	
Cobalt	ug/L	2.5J	40	40	41.4	40.7	97	95	70-130	2	20	
Copper	ug/L	38.5	40	40	76.6	75,6	95	93	70-130	1	20	
Lead	ug/L	1.6J	40	40	41.1	40.5	99	97	70-130	2	20	
Manganese	ug/L	1790	40	40	1830	1820	99	69	70-130	1	20	М1
Molybdenum	ug/L	17.1	40	40	58.8	58.7	104	104	70-130	.0	20	
Nickel	ug/L	3.3J	40	40	41.1	41.4	95	95	70-130	1	20	
Selenium	ug/L	ND	40	40	39.7	40.3	99	100	70-130	1	20	
Thallium	ug/L	2.0J	40	40	40.6	40.4	96	96	70-130	1	20	
Vanadium	ug/L	ND	40	40	38.2	40.8	93	100	70-130	·6	20	
Zinc	ug/L	3010	100	100	3120	3100	111	87	70-130	1	20	





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

MPRP/20132

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

METHOD BLANK: 1085510

Associated Lab Samples: 60131706001

Matrix: Water

Associated Lab Samples: 60131706001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	5.7J	50.0	10/29/12 12:20	
Antimony, Dissolved	ug/L	ND	1.0	10/27/12 14:16	
Arsenic, Dissolved	ug/L.	ND.	1.0	10/24/12 14:49	
Barium, Dissolved	ug/L	0.20J	10	10/27/12 14:16	
Beryllium, Dissolved	ug/L	:ND	0.50	10/24/12 14:49	
Cadmium, Dissolved	ug/L	:ND	0.50	10/24/12 14:49	
Chromium, Dissolved	ug/L	:ND	1.0	10/24/12 14:49	
Cobalt, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Copper, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Lead, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Manganese, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Molybdenum, Dissolved	ug/L	ND	1.0	10/29/12 12:20	
Nickel, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Selenium, Dissolved	ug/L	ND	1.0	10/24/12 14:49	
Thallium, Dissolved	ug/L	0.32J	1.0	10/27/12 14:16	
Vanadium, Dissolved	ug/L	ND	1.0	10/27/12 14:16	
Zinc, Dissolved	ug/L	ND	10.0	10/24/12 14:49	

LABORATORY CONTROL SAMPLE:	1085511					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Numinum, Dissolved	ug/L	1000	949	95	85-115	
ntimony, Dissolved	ug/L	40	40.4	101	85-115	
senic, Dissolved	ug/L	40	39,4	99	85-115	
arium, Dissolved	ug/L	40	39.3	98	85-115	
eryllium, Dissolved	ug/L	40	41.2	103	85-115	
dmium, Dissolved	ug/L	40	40.7	102	85-115	
romium, Dissolved	ug/L	40	39.7	99	85-115	
obalt, Dissolved	ug/L	40	38.3	96	85-115	-
pper, Dissolved	ug/L	40	39,0	98	85-115	
ad, Dissolved	ug/L	40	39.4	98	85-115	
inganese, Dissolved	ug/L	40	39.9	100	85-115	
olybdenum, Dissolved	ug/L	40	38.9	97	85-115	
ckel, Dissolved	ug/L	40	38.7	97	85-115	
lenium, Dissolved	ug/L	- 40	40.3	101	85-115	
allium, Dissolved	ug/L	40	38.4	96	85-115	
nadium, Dissolved	ug/L	40	39.1	98	85-115	
nc, Dissolved	ug/L	100	106	1.06	85-115	

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REPORT OF LABORATORY ANALYSIS

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Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

MATRIX SPIKE & MATRIX S	PIKE DUPLICAT	E: 10855	12		1085513							
			MS	MSD								
	60 ⁻	131762003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Aluminum, Dissolved	ug/L	ND	1000	1000	7.97	799	78	7.9	70-130		20	
Antimony, Dissolved	ug/L	ND	40	40	41.3	40.7	103	102	70-130	2	20	
Arsenic, Dissolved	ug/L	ND	40	40	40.5	40.8	101	101	70-130	1	20	
Barium, Dissolved	ug/L	18,9	40	40	58.7	58.7	99	99	70-130	0	20	
Beryllium, Dissolved	ug/L	0.48J	40	40	39.6	40.4	98	100	70-130	2	20	
Cadmium, Dissolved	ug/L	13.6	40	40	54.2	54.6	101	102	70-130	1	20	
Chromium, Dissolved	ug/L	ND	40	40	39.1	39.7	98	99	70-130	2	20	
Cobalt, Dissolved	ug/L	2.4J	40	40	40.0	40.7	94	96	70-130	2	20	
Copper, Dissolved	ug/L	3.1J	40	40	41.3	41.5	96	96	70-130	1	20	
Lead, Dissolved	ug/L	ND	40	40	38.8	39.4	97	98	70-130	1	20	
Manganese, Dissolved	ug/L	1760	40	40	1800	1790	11.0	81	70-130	1	20	
Molybdenum, Dissolved	ug/L	16.3	40	40	57.3	57.4	102	103	70-130	0	20	
Nickel, Dissolved	ug/L	2,7J	40	40	40.7	42.0	95	98	70-130	3	20	
Selenium, Dissolved	ug/L	ND	40	40	40.4	40.1	101	100	70-130	1	20	
Thallium, Dissolved	ug/Ľ	1.8J	40	40	40.2	40.6	96	97	70-130	1	20	
Vanadium, Dissolved	ug/L	ND	40	40	45.0	43.0	112	106	70-130	5	20	
Zinc, Dissolved	ug/L	2810	100	100	2930	2940	123	128	70-130	0	20	





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

QC Batch Method:

MPRP/20200

EPA 200.8

Analysis Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

METHOD BLANK: 1088224

60131706001

Matrix: Water

Associated Lab Samples:

60131706001

Blank Result

Reporting Limit

Analyzed

Parameter Silver, Dissolved

Units ug/L

ND

0.50 10/30/12 17:41

LABORATORY CONTROL SAMPLE:

Parameter

1088225

Units

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Silver, Dissolved

Silver, Dissolved

ug/L

Units-

ug/L

20

20.1

101

Qualifiers 85-115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

1088226

1088227

20

MS

% Rec Max

Qual

60131706001

Parameter

ND

Result

MS Spike Conc.

20

MSD Spike Conc.

MS Result 18.6

MSD Result

18.8

MSD % Rec % Rec 93

Limits 70-130

RPD RPD

20





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

WET/37848

SM 2320B

Analysis Method:

SM 2320B

QC Batch Method:

Analysis Description:

2320B Alkalinity

Associated Lab Samples: 60131706001

Matrix: Water

METHOD BLANK: 1085484 Associated Lab Samples:

Alkalinity, Carbonate (CaCO3)

Alkalinity, Hydroxide (CaCO3)

Alkalinity, Total as CaCO3 Alkalinity, Bicarbonate (CaCO3)

60131706001

Blank Result	Reporting Limit	Analyzed	Qualifiers
 ND	20.0	10/24/12 10:56	
ND	20.0	10/24/12 10:56	
ND	20.0	10/24/12 10:56	
ND	20.0	10/24/12 10:56	

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

1085485

Units

Units

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Alkalinity, Total as CaCO3

mg/L

mg/L

mg/L mg/L

mg/L

500

493

99

90-110

SAMPLE DUPLICATE: 1085486

Parameter	Units-	60131463001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND ND	ND		24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	ND		27	
Alkalinity, Total as CaCO3	mg/L	223	227	2	9	
Alkalinity, Bicarbonate (CaCO3)	mg/L	223	227	2	.9	

SAMPLE DUPLICATE: 1085487

Parameter	Ünits	60131643002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		24	
Alkalinity, Hydroxide (CaCO3)	mg/L	ND	ND		27	
Alkalinity, Total as CaCO3	mg/L	499	522	5	9	
Alkalinity, Bicarbonate (CaCO3)	mg/L	499	522	5	9	

Date: 11/05/2012 10:11 AM





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

QC Batch:

WET/37859

SM 2540D

Analysis Method:

SM 2540D

QC Batch Method:

Analysis Description:

2540D Total Suspended Solids

METHOD BLANK: 1085814

Matrix: Water

Associated Lab Samples:

Associated Lab Samples:

60131706001

60131706001

Blank Result Reporting Limit

Analyzed

Qualifiers

Total Suspended Solids

mg/L

Units

Units

ND

10/25/12 10:27

SAMPLE DUPLICATE: 1085815

Parameter

Parameter

60131639001 Result

Dup Result

RPD

Max RPD

Qualifiers

Total Suspended Solids

mg/L

7.0

7.0

0

25

Date: 11/05/2012 10:11 AM





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131:706

QC Batch:

WETA/22230

EPA 300.0

Analysis Method:

EPA 300.0

QC Batch Method:

Associated Lab Samples: 60131706001 **Analysis Description:**

300.0 IC Anions

METHOD BLANK: 1088610

Matrix: Water

ND

Associated Lab Samples:

60131706001

Blank

Reporting

Analyzed

Qualifiers

Parameter Sulfate

Units.

Result

Limit

1.0 10/28/12 14:07

LABORATORY CONTROL SAMPLE:

Parameter

1088611

Units

mg/L

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Sulfate

mg/L

5

5.1

101

90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

1088612

1088613

MS

MSD

% Rec

Max

60131933014

MS MSD Spike

50

MS Result

MSD Result

% Rec % Rec Limits 61-119 RPD RPD

Sulfate

Parameter Units Result mg/L 95.3 Spike Conc.

Conc. 50

140 140 89

0

Qual 10



QUALIFIERS

Project:

RICO ARGENTINE MINE SITE

Pace Project No .:

60131706

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit,

J- Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60131706

SLSWP110UT121018 SLSWP110UT121018	EPA 200.7	MPRP/20131	EPA 200.7	ICP/16494
SLSWP110UT121018	ED4 000 7			101/10494
	EPA 200.7	MPRP/20130	EPA 200.7	ICP/16493
SLSWP110UT121018	EPA 200.8	MPRP/20133	EPA 200.8	ICPM/1760
SLSWP110UT121018	EPA 200.8	MPRP/20133	EPA 200.8	ICPM/1778
SLSWP110UT121018	EPA 200.8	MPRP/20132	EPA 200.8	ICPM/1759
SLSWP110UT121018	EPA 200.8	MPRP/20200	EPA 200:8	ICPM/1777
SLSWP110UT121018	SM 2320B	WET/37848		
SLSWP110UT121018	SM 2540D	WET/37859		
SLSWP110UT121018	EPA 300.0	WETA/22230	•	
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Date: 11/05/2012 10:11 AM

REPORT OF LABORATORY ANALYSIS

Page 27 of 27

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Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60131706

Client Name: BP Amec	Projec	t #:				Optional
Courier: Fed Ex UPS V USPS Client	Comme	ercial (□ Pa	ce 🗆 Other 🗆		Proj Due Date:
Tracking #: 12733W87 22 1005 6879 F	Pace Shi	pping	Label U	sed? Yes A	lo 🗆	Proj Name:
Custody Seal on Cooler/Box Present: Yes 2 No	□ Se	als int	act: Y	es 🗹 No 🗆		
Packing Material: Bubble Wrap □ Bubble Ba	gs 🗆		Foam D	□ None □	Other 2	PIC
	pe of lc	e: (W			ples received on	ice, cooling process has begun.
Cooler Temperature: 0.5			(circle	one)	Date and initia	ls of person examining
Temperature should be above freezing to 6°C	-				contonts.	
Chain of Custody present:	Yes			1.	4	
Chain of Custody filled out:	Yes	□No	□N/A	2.		
Chain of Custody relinquished:	E Yes	□No	□N/A	3.		
Sampler name & signature on COC:	MYes	□No	□N/A	4,		
Samples arrived within holding time:	□Yes	□No	□N/A	5.		
Short Hold Time analyses (<72hr):	□Yes	MNo	□N/A	6.		
Rush Turn Around Time requested:	Yes	□No	□N/A	7.48 hr		
Sufficient volume:	Yes	□No	□N/A	8.		
Correct containers used:	Yes	□No	□N/A			
Pace containers used:	Yes	□No	□N/A	9.		
Containers intact:	Yes	□No	□N/A	10.		
Unpreserved 5035A soils frozen w/in 48hrs?	□Yes	□No	₩N/A	11.		
Filtered volume received for dissolved tests?	Yes	□No	□N/A	12.		
Sample labels match COC:	Yes	□No	□N/A			
Includes date/time/ID/analyses Matrix: WT	Г			13.		
All containers needing preservation have been checked.	Yes	□No	□N/A			
All containers needing preservation are found to be in compliance with EPA recommendation.	Yes	□No	□N/A	14.		
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water),	□Yes	MNo		Initial when completed		# of added
Phenolics Trip Blank present:	ПYes	ПМа	ZN/A	Completed	pres	scivative
Pace Trip Blank lot # (if purchased):	3. As			15.		
Headspace in VOA vials (>6mm):	□Yes	□No	DNIA		100	
				16.		
Project sampled in USDA Regulated Area:	□Yes	□No	BN/A	17. List State:		
	OC to Cli		Y 17		Required?	/ / N
Lyngla and 10/22			10/2	aalia	-	og: Record start and finish times
	2ub/	100	0	on t noor		packing cooler, if >20 min, sample temps.
1	2	1		or cold	Start:	
0				,	End: 1	
Project Manager Review:				Date: 1000	la Temp:	Temp:



Laboratory Management Program LaMP Chain of Custody Record

Req Due Date (mm/dd/yy):

BP/ARC Project Name: Rico-Argentine Mine Site

	Page	<u>_</u>	f	_
Rush	TAT: Yes	<u>X</u>	No	_

ÖA	BP entitated company	BP/ARC Fac	cility No:	un -	÷.	_							 -	-	Lab	Worl	k Orc	ier N	ńwpo	er:							
Lab Name	Pace Analytical Laboratories,	inc.	-	BP//	ARC	Facili	ty Ac	dress	Ε.	Rico	Arge	ntine I	Vine						Con	sultan	t/Con	tractor	;	AME	C E&I, Inc.		
Lab Addre	ss: 9608 Loiret Blvd., Lenexa, K	S 66219		City	Stat	e, ZIF	Co	de:		Rico	Colo	rado 8	1332					,	Con	ultan	t/Con	tractor	Proje	ct No	: SA11161302	200A	
Lab PM:	Heather Wilson			Lea	d Re	gulato	ну А	gency	:	U.S.	EPA I	Regio	n 8						Add	ess:	1067	ro Wh	ite Ro	ck R	oad, Suite 100, Rand	cho Cordovi	, CA
Lab Phone	e: (913) 563-1407			Cali	fornia	a Glot	al (C	No.:		NA									Con	sultan	t/Conf	tractor	PM:	Man	c Lombardi		
Lab Shippi	ing Accent: UPS # 733W87			Enfo	s Pn	oposa	l No	Ç		D009	D-00	24 (W	R 251	660)					Pho	ne:	916-	636-3	200				
Lab Bottle	Order No: NA		-	Acc	ounti	ng Mo	de:		Pro	vision	x_	00	C-BU		00	C-RM	-	-	Ema	il Rep	ort/Et	D To	. lynd	a.iom	bardi@amec.com		,
Other Info:	: Wettand Pilot Scale Test	errita e escara		Stag	je:	4-Ex	ecut	ě	Ac	tivity:	Sper	rd	·						Invo	ce To):	BF	/ARC	×	Contractor		
BP/ARC E	BM: Anthony Brown			Ma	trix		No. (ont	iner	s / Pr	eser	vative					•			alyse	s			Report Ty	pe & QC L	.evel	
EBM Phon	ne: 714-228-6770							go.	:	į			,		-	,			ē	1		j			Sta	ndard _X_	•
EBM Emai	il: anthony.brown@bp.com							Containers		į.						١		:	8	#		mand			Full Data Pa	ckage	•
Lab	Sample Description	Date	Time		pint			ত	19 0						-see notes 10.8/245.1)	-see notes 10,8/245.1)	Lithium		Alkalinity-Total, HCO3, CO3, OH	ended Solk	Total Organic Carbon (SM 53108)	Biological Oxygen Demand (SM:52108)			60131	106	, q
No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor		Total Number	Unpreserved	H ₂ SO ₄	HNO3	ᅙ		RUSH	Tot Metals (E200.7/20	Dis Metals (E200.7/20	Dissolved Lithium (E200.7)	Sulfate (E300.0)	Alkalinity-T	Total Susp (SM2640D	Total Orga (SM E3108	Biological C (SM 5210B	MS/MSD	HOLD	Note: If sample not of Sample" in comment and initial any prepri	collected, indicated	strike out
5/	LSWP110UTIZIOI8	10/18/12	1355		X:	18P2	ų	5	2	0	3	Ø		X	X	X	X	X	X	X	1893		893	.5	Dissolved metals a	are field filte	red. (V)
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														· ·		,									Metals are: Ca, Fe	, K, Na, Mg	(E200.7);
											L								<u> </u>						Ag, Al, As, Ba, Be,	Cd, Co, Cr	Cu, Mn,
					l i				<u></u>		<u> </u>	<u> </u>		1						1				1	Mo, Ni, Pb, Sb, Se	, TI, V, Zn (I	E200.8);
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REVISED

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: Rico-Argentine Mine Site

BP/ARC Facility No:

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	Req Due Date (mm/dd/yy):		Rush TAT:	Yes	<u> </u>	No_	
	Lab Work Order Number						

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Lab Nam	e: Pace Analytical Laboratories	, inc.		BP	ARC	Facil	ity Ad	ddres	8 .	Ricc	-Arge	ntine	Mine						Con	ultan	√Con	racto		AME	C E&L, Inc.			1
Lab Addr	ess: 9608 Loiret Blvd., Lenexa, K	S 66219	2	City	, Sta	te, Zil	PCo	de:		Ricc	, Colo	rado	81332				•		Con	ultan	V Con	ractos	Proje	ct No	SA11161302	200A	,	1
Lab PM:	Heather Wilson			Lea	d Re	gulate	ory A	gency	y:	.U.S.	EPA	Regio	n 8	•			٠		Addr	85 <u>8</u> :	.1057	o Wh	ite Ro	ck Ro	ad, Suite 100, Ran	ho Cordovi	a, CA	1
Lab Phor	e: (913) 563-1407	. •	-	Cal	iforni	a Gloi	bal (() No.:	:	ΝA	_								Cons	ulten	/Con	ractor	PM:	Marc	Lombardi			1
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Other Info	: Wetland Pilot Scale Test			Sta	ge:	4-E)	œcut	e	A	ctivity	Sper	nd			- (*	_		Invoi	ce To	ε	BF	/ARC	_ <u>×</u>	Contractor			1
BP/ARC	BM: Anthony Brown				Ma	itrix	•	No. (Cont	ainer	s / Pı	reser	vative	•	13.	2	*	Requ	este	d An	alyse	s			Report Ty	e & QC L	.evel	1
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EBM Emi	ili: anthony.brown@bp.com			1				Containen							3	9	5,		8			E C			Full Data Pa	kage	•	
Lab No.	Sample Description	Date	Time.	Soil / Solid	Water / Liquid	Air / Vapor		Total Number of Con	Unpreserved	#\$0°	FONH.	뀾		RUSH	Tot Metals-see notes (E200.7/200.8/246.4)	Dis Metals-see notes (E200,77200 8/246-49	語が下	Suffate (E300.0)	Altalinity-Total, HCOS, COS, OH (SNI23208)	Total Suspended Solids (SM2540D)	Total Organic Carbon (SM 53108)	Biological Oxygen Demand (SM 62108)	DSWASH	HOLD	Cor Note: if sample not of Sample" in comment and initial any prepri	s and single-	strike out	
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Th	IS LINE - LAB USE ONLY: Custoo	dy Seals in Plac	e: Yes / No	1	Temp	Blen	k: Ye	s / N	0	C	ooler '	Temp	on Re	celpt:	<u> </u>		_*F/C		Tri	p Slai	nk: Ye	s / No		MS	MSD Sample Sub	nitted: Yes	/ No	





November 08, 2012

Lynda Lombardi AMEC Environmental & Infrastructure, Inc. 10670 White Rock Road Suite 100 Rancho Cordova, CA 95670

RE: Project: RICO ARGENTINE MINE SITE

Pace Project No.: 60132044

Revised Report 11/9/12_rev.1 Certifications Corrected

Dear Lynda Lombardi:

Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2012. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

This report revision is being issued to correct an error in the listing of certification numbers. There are no changes to any reported result.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

diamon m. Wilson

Heather Wilson

heather.wilson@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456:01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407-12-3 Utah Certification #: KS000212012-2





SAMPLE SUMMARY

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Lab ID	Sample ID	 Matrix	Date Collected	Date Received
60132044001	SLSWP11121025	 Water	10/25/12 10:35	10/26/12 10:00





SAMPLE ANALYTE COUNT

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60132044001	SLSWP11121025	EPA 200.7	SMW	5
		EPA 200.7	SMW	5
		EPA 200.8	JGP	10
		EPA 200.8	JGP	10
		SM 2320B	DJR	4
		SM 2540D	FJF	1
		EPA 300:0	AJM	1:



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 200.7

Description: 200.7 Metals, Total

Cilent:

BP AMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20195

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132044001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087840)
 - Calcium
- MSD (Lab ID: 1087841)
 - Calcium



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 200.7

Client:

Description: 200.7 Metals, Dissolved

BP AMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20194

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132044001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087836)
 - · Calcium, Dissolved
- MSD (Lab ID: 1087837)
 - Calcium, Dissolved



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 200.8

Description: 200:8 MET ICPMS

Client:

BP AMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20197

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132045002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087850)
 - Manganese
 - Zinc
- · MSD (Lab ID: 1087851)
 - Manganese
 - · Zinc.



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 200.8

Description: 200.8 MET ICPMS

Client:

BP AMEC

Date:

November 08, 2012

Analyte Comments:

QC Batch: MPRP/20197

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SLSWP11121025 (Lab ID: 60132044001)
 - Arsenic
 - Chromium
 - Selenium



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 200.8

Description: 200,8 MET ICPMS, Dissolved

Client:

BP AMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for EPA 200.8.. All samples were received in acceptable condition with any exceptions noted below.

Hold Time

The samples were analyzed within the method required hold times with any exceptions noted below:

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20196

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60132044001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1087844)
 - Manganese, Dissolved
 - · Zinc, Dissolved
- MSD (Lab ID: 1087845)
 - Manganese, Dissolved
 - · Zinc, Dissolved



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

BP AMEC

Date:

November 08, 2012

Analyte Comments:

QC Batch: MPRP/20196

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- · SLSWP11121025 (Lab ID: 60132044001)
 - · Arsenic, Dissolved
 - · Chromium, Dissolved
 - Copper, Dissolved
 - · Lead, Dissolved
 - · Selenium, Dissolved



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

SM 2320B **Description: 2320B Alkalinity**

Client:

BP AMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

SM 2540D

Description: 2540D Total Suspended Solids

Client:

BPAMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.



PROJECT NARRATIVE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Method:

EPA 300.0

Description: 300.0 IC Anions 28 Days

Client:

BP AMEC

Date:

November 08, 2012

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.



ANALYTICAL RESULTS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Sample: SLSWP11121025	Lab ID: 60	0132044001 Collect	ed: 10/25/1	2 10:35	Received: 10/	26/12 10:00 M	atrix: Water	
		Report						
Parameters	Results	Units Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
00.7 Metals, Total	Analytical Mo	ethod: EPA 200.7 Pre	paration Meti	nod: EP	A 2 <u>0</u> 0.7			
Calcium	215000 ug/L	_ 100	35.8	1	10/26/12 17:30	10/27/12 12:03	7440-70-2	M1
Iron	1540 ug/L	50:0	17,2	1	10/26/12 17:30	10/27/12 12:03	7439-89-6	
Magnesium	18400 ug/L	_ 50:0	17.2	1	10/26/12 17:30	10/27/12 12:03	7439-95-4	
Potassium	63700 tig/L		64.1	1	10/26/12 17:30	10/27/12 12:03	7440-09-7	
Sodium	11100 ug/L	_ 500	40.1	1	10/26/12 17:30	10/27/12 12:03	7440-23-5	
200.7 Metals, Dissolved	Analytical Mo	ethod: EPA 200.7 Prej	paration Metl	od: EP	A·200.7			
Calcium, Dissolved	226000 ug/L	_ 100	35.8	1	10/26/12 17:30	10/27/12 12:23	7440-70-2	D9,M1
Iron, Dissolved	ND ug/L	50:0	17.2	1	10/26/12 17:30	10/27/12 12:23	7439-89-6	
Magnesium, Dissolved	19400 ug/L	_ 50.0	17.2	1	10/26/12 17:30	10/27/12 12:23	7439-95-4	D9
Potassium, Dissolved	65900 ug/L	500	64.1	1	10/26/12 17:30	10/27/12 12:23	7440-09-7	D9
Sodium, Dissolved	11400 ug/L	500	40.1	1	10/26/12 17:30	10/27/12 12:23	7440-23-5	D9
200.8 MET ICPMS	Analytical Mo	ethod: EPA 200.8 Prej	paration Meth	nod: EP	A 200.8			
Arsenic	ND ug/L	5:0	0.70	5	10/26/12 17:30	10/30/12 13:10	7440-38-2	D3
Cadmium	10.8 ug/L		0.48	5	10/26/12 17:30	10/30/12 13:10		
Chromium	ND ug/L	•	0.55	-5	10/26/12 17:30			D3
Cobalt	1.9J ug/L		0.24	5	10/26/12 17:30			
Copper	20.7 ug/L		2.2	-5	10/26/12 17:30	10/30/12 13:10		
Lead	2.8J ug/L			5		10/30/12 13:10		
Manganese	1410 ug/L			5	10/26/12 17:30			
Nickel	2.4J ug/L		1.8	5	10/26/12 17:30	10/30/12 13:10		
Selenium	ND ug/L		1.8	5	10/26/12 17:30			D3 ⁻
Zinc	2100 ug/L		8.0	5	10/26/12 17:30			
200.8 MET ICPMS, Dissolved	Analytical Mo	ethod: EPA 200.8 Pre	paration Meth	nod: EP	A 200.8			
Arsenic, Dissolved	ND ug/L	. 5:0	0.70	5	10/26/12 17:30	10/30/12 13:44	7440_38_2	D3
Cadmium, Dissolved	9.6 ug/L		0.48	-5	10/26/12 17:30	10/30/12 13:44		Do
Chromium, Dissolved	ND ug/L		0.55	5	10/26/12 17:30			D3
Cobalt, Dissolved	2.0J ug/L		0.24	5	10/26/12 17:30			20
Copper, Dissolved	ND ug/L			-5	10/26/12 17:30			D3
Lead, Dissolved	ND ug/L			5	10/26/12 17:30			D3
Manganese, Dissolved	1440 ug/L		1.2	5	10/26/12 17:30	10/30/12 13:44		D9,M
Nickel, Dissolved	2.6J ug/L			5	10/26/12 17:30			50,
Selenium, Dissolved	ND ug/L			5	10/26/12 17:30	10/30/12 13:44		D3
Zinc, Dissolved	1850 ug/L		8.0	5	10/26/12 17:30			M1
2320B Alkalinity		ethod: SM 2320B	_				·	
Alkalinity,Bicarbonate (CaCO3)	107 mg/		1.2	1		10/29/12 09:40		
Alkalinity, Carbonate (CaCO3)	ND mg/			i		10/29/12 09:40		
Aikalinity, Hydroxide (CaCO3)	ND mg/			i		10/29/12 09:40		
Alkalinity, Total as CaCO3	107 mg/			i		10/29/12 09:40		
2540D Total Suspended Solids	-	ethod: SM 2540D		•		·— -· • •		
Total Suspended Solids	ND mg/		5.0	1		10/29/12 10:34		
Jack Janes		0.0	0.0	•				

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

Sample: SLSWP11121025

Lab ID: 60132044001

Collected: 10/25/12 10:35

Received: 10/26/12 10:00

Matrix: Water

Report

Parameters

Results Units Limit

MDL

DF

Prepared

Analyzed CAS No. Qual

300.0 IC Anions 28 Days

Analytical Method: EPA 300.0

Sulfate

657 mg/L

50.0

6.0 -50 10/28/12 15:17 14808-79-8

Date: 11/08/2012 11:29 PM

REPORT OF LABORATORY ANALYSIS

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Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

Calcium

Potassium

Sodium

Iron Magnesium MPRP/20195

Analysis Method:

EPA 200.7

QC Batch Method:

EPA 200.7

Analysis Description:

200.7 Metals, Total

METHOD BLANK: 1087838

Matrix: Water

Associated Lab Samples:

Parameter

Associated Lab Samples:

60132044001

Units

ug/L ug/L

ug/L

ug/L

ug/L

60132044001

Blank Result	Reporting Limit	Analyzed	Qualifiers
ND ND	100	10/27/12 11:57	
ND	50.0	10/27/12 11:57	
ND	50.0	10/27/12 11:57	
ND	500	10/27/12 11:57	
ND	500	10/27/12 11:57	

LABORATORY CONTROL SAMPLE: 1087839

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	9830	98	85-115	
Iron	ug/L	10000	9980	100	85-115	
Magnesium	` ug/L	10000	9240	92	85-115	
Potassium	ug/L	10000	9780	98	85-115	
Sodium	ug/L	10000	9810	98	85-115	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 10878	40		1087841							
Parameter	60° Units	132044001 Result	MS Spike	MSD Spike	MS Bosult	MSD Result	MS % Box	MSD % Page	% Rec	RPD	.Max RPD	Ougl
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPU	KPU	Qual
Calcium	iug/L	215000	10000	10000	232000	222000	167	66	70-130	4	.9	M1
Iron	ug/L	1540	10000	10000	11400	11200	98	96	70-130	2	10	
Magnesium	ug/L	18400	10000	10000	28000	27200	96	88	70-130	3	9	
Potassium	ug/L	63700	10000	10000	76100	72700	124	90	70-130	4	7	
Sodium	ug/L	11100	10000	10000	21600	21100	105	100	70-130	2	-8	





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

MPRP/20194

Analysis Method:

EPA 200.7

QC Batch Method:

EPA.200.7

Analysis Description:

200.7 Metals, Dissolved

Associated Lab Samples:

METHOD BLANK: 1087834

Matrix: Water

Associated Lab Samples:

Calcium, Dissolved

Magnesium, Dissolved

Potassium, Dissolved

Sodium, Dissolved

Iron, Dissolved

Parameter

60132044001

Units

ug/L

ug/L

ug/L

ug/L

ug/L

60132044001

 ank sult	Reporting Limit	Analyzed	Qualifiers
 ND	100	10/27/12 11:57	
ND	50.0	10/27/12 11:57	
ND	50.0	10/27/12 11:57	
ND	500	10/27/12 11:57	
ND	500	10/27/12 11:57	

LABORATORY CONTROL SAMPLE: 1087835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
raiametei	Onits	Conc.	resuit	70 KeC	Limis	Quaimers
Calcium, Dissolved	ug/L	10000	9830	98	85-115	
Iron, Dissolved	ug/L	10000	9980	100.	85-115	
Magnesium, Dissolved	ug/L	10000	9240	92	85-115	
Potassium, Dissolved	ug/L	10000	9780	98	85-115	
Sodium, Dissolved	ug/L	10000	9810	98	85-115 ⁻	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1087836			36	1087837								
	60	132044001	MS Spike	MSD Spike	MS.	MSD	MS	MSD	% Rec		'Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Calcium, Dissolved	ug/L	226000	10000	10000	229000	229000	24	21	70-130		9	M:1
iron, Dissolved	ug/L	ND	10000	1:0000	9990	9960	100	100	70-130	Ŭ	10	
Magnesium, Dissolved	ug/L	19400	10000	10000	28600	28200	92	89	70-130	1	.9	
Potassium, Dissolved	ug/L	65900	10000	10000	74600	75100	87	92	70-130	1	7	
Sodium, Dissolved	ug/L	11400	10000	1,0000	21200	21300	98	99	70-130	0	8	





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

Arsenic

Cobalt

Copper

Lead

Zinc

Cadmium

Chromium

Manganese Nickel

Selenium

MPRP/20197

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET

Associated Lab Samples:

60132044001

METHOD BLANK: 1087848

Matrix: Water

Associated Lab Samples:

Parameter

60132044001

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L ug/L

ug/L

ug/L

ug/L

Unițs	Blank Result	Reporting Limit	Analyzed	Qualifiers
	ND ND	1.0	10/30/12 12:50	
	ŅD	0.50	10/30/12 12:50	
	ND	1.0	10/30/12 12:50	
	ND	1.0	10/30/12 12:50	
	ND	1.0	10/30/12 12:50	
	·ND	1.0	10/30/12 12:50	
	0.32J	1.0	10/30/12 12:50	
	ND	1.0	10/30/12 12:50	
	ND	1.0	10/30/12 12:50	
	2.5J	10.0	10/30/12 12:50	

LABORATORY CONTROL SAMPLE: 1087849

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	42.0	105	85-115	
Cadmium	ug/L	40	41.5	104	85-115	
Chromium	ug/L	40	41.0	103	85-115	
Cobalt	ug/L	40	39.8	100	85-115	
Copper	ug/L	40	40.3	101	85-115	
Lead	ug/L	40	39.8	100	85-115	
Manganese	ug/L	40	40.9	102	85-115	
Nickel	ug/L	40	40.9	102	85-115	
Selenium	ug/L	40	43.6	109	85-115	
Zinc	ug/L	100	113	113	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1087850			50	1087851								
Parameter	60 Units	132045002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	:Max RPD	Qual
Arsenic	ug/L	ND.	40	40	40.6	39.8	101	99	70-130			
Cadmium	ug/L	14.2	40	40	55.6	54.0	104	100	70-130	3		
Chromium	ug/L	0.61J	40	40	40.3	40.1	99	99	70-130	1	20	
Cobalt	ug/L	2,5J	40	40	40.9	40:6	96	95	70-130	1	20	
Copper	ug/L	39,2	40	40	76.6	74.1	93	87	70-130	3	20	
Lead	ug/L	2.2J	40	40	41.8	40.7	99	96	70-130	. 3	20	
Manganese	ug/L	1730	40	40	1760	1730	65	4	70-130	1	20	M1
Nickel	ug/L	3,1J	40	40	42.0	40.6	97	94	70-130	3	20	
Selenium	ug/L	.ND	40	40	39.1	40.1	97	100	70-130	2	20	
Zinc	ug/L	2890	100	100	2950	2910	66	22	70-130	2	20	M1

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Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

MPRP/20196

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Associated Lab Samples:

60132044001

Analysis Description:

200.8 MET Dissolved

METHOD BLANK: 1087842

Matrix: Water

Associated Lab Samples: 60132044001

•					
Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND .	1.0	10/30/12 12:50	
Cadmium, Dissolved	ug/L	ND	0.50	10/30/12 12;50	
Chromium, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Cobalt, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Copper, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Lead, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Manganese, Dissolved	ug/L	0.32J	1.0	10/30/12 12:50	
Nickel, Dissolved	ug/L	ND	1.0	10/30/12 12:50	•
Selenium, Dissolved	ug/L	ND	1.0	10/30/12 12:50	
Zinc, Dissolved	ug/L	2,5J	10.0	10/30/12 12:50	

LABORATOR	Y CONTROL SAMPLE:	1087843

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec	Qualifiers
Arsenic, Dissolved	ug/Ľ	40	42.0	105	85-115	
Cadmium, Dissolved	ug/L	40	41.5	104	85-115	
Chromium, Dissolved	ùg/L	40	41.0	103	85-115	
Cobalt, Dissolved	ug/L	40	39.8	100	85-115	
Copper, Dissolved	ug/L	40	40.3	101	85-115	
Lead, Dissolved	ug/L	40	39.8	100	85-115	
Manganese, Dissolved	ug/L	40	40.9	102	85-115	
Nickel, Dissolved	ug/L	· 40	40.9	102	85-115	
Selenium, Dissolved	ug/L	40	43.6	109	85-115	
Zinc, Dissolved	ug/L	100	113	113	85-115	

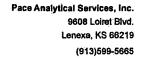
MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 10878	44		1087845							
	60132044001		MS MSD Spike Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	:
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic, Dissolved	ug/L	ND .	40	40	40.1	35.3	100	88	70-130	13	20	
Cadmium, Dissolved	ug/L	9.6	40	.40	49.7	42.3	100	82	70-130	16	20	
Chromium, Dissolved	ug/L	ND	40	40	39.2	34,8	97	86	70-130	12	20	
Cobalt, Dissolved	ug/L	2.0J	40	40	39.9	35.0	95	82	70-130	13	20	
Copper, Dissolved	ug/L	ND	40	40	39.3	34.4	94	82	70-130	13	20	
Lead, Dissolved	ug/L	ND	40	40	39,1	33.9	98	85	70-130	14	20	
Manganese, Dissolved	ug/L	. 1440	40	40	1410	1250.	-79	-462	70-130	12	20	M1
Nickel, Dissolved	ug/L	2.6J	40	40	39.4	35.3	92	.82	70-130	11	20	
Selenium, Dissolved	ug/L	ND	40	40	38.5	34.0	96	85	70-130	12	20	
Zinc, Dissolved	ug/L	1850	100	100	1870	1660	14	-190	70-130	12	20	M1

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Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

WET/37940

Analysis Method:

SM 2320B

QC Batch Method:

SM 2320B

Analysis Description:

2320B Alkalinity

Associated Lab Samples:

60132044001

METHOD BLANK: 1089027

Matrix: Water

Associated Lab Samples:

Alkalinity, Hydroxide (CaCO3)

Alkalinity, Bicarbonate (CaCO3)

Alkalinity, Total as CaCO3

60132044001

Blank Result	Reporting Limit	Analyzed	Qualifiers
ND	20.0	10/29/12 09:24	
ND	20.0	10/29/12 09:24	
ND	20.0	10/29/12 09:24	
ND	20.0	10/29/12 09:24	

LABORATORY CONTROL SAMPLE:

Parameter Alkalinity, Carbonate (CaCO3)

1089028

mg/L

mg/L

mg/L

mg/L

Units

Parameter

Spike Units Conc.

LCS Result

LCS % Rec

99

% Rec Limits

Qualifiers

Alkalinity, Total as CaCO3

mg/L

mg/L mg/L mg/L mg/L 500

60131933014

494

90-110

Max

Qualifiers

Qualifiers

SAMPLE DUPLICATE: 1089029

Ì	Parameter	Units
	Alkalinity, Carbonate (CaCO3)	mg/L
	Alkalinity, Hydroxide (CaCO3)	mg/L
	Alkalinity, Total as CaCO3	mg/L
	Alkalinity/Bicarbonate (CaCO3)	ma/L

Result	Result	RPD	RPD
ND	ND		
ND	ND		
118	114		4
118	114		4
	ND ND 118	ND ND ND 118 114	ND ND ND ND 1118 114

Dup

SAMPLE DUPLICATE: 1089030

Parameter
Alkalinity, Carbonate (CaCO3)
Alkalinity, Hydroxide (CaCO3)
Alkalinity, Total as CaCO3
Alkalinity, Bicarbonate (CaCO3)

Units	60132033002 Result	:Dup Result	RPD	Max RPD	•
	ND ND	ND			24
	ND	ND			27
	310	317	2	2	9
	310	317	2	2	9

Date: 11/08/2012 11:29 PM





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

WET/37941

Analysis Method:

SM 2540D

QC Batch Method:

SM 2540D

Analysis Description:

2540D Total Suspended Solids

METHOD BLANK: 1089075

Matrix: Water

Associated Lab Samples:

Associated Lab Samples:

60132044001

60132044001

Blank Result Reporting Limit

Analyzed

Qualifiers

Total Suspended Solids

mg/L

Units

ND

10/29/12 10:32

SAMPLE DUPLICATE: 1089076

Parameter

Parameter

60131793001 Units Result

Dup Result

RPD

Max RPD

Qualifiers

Total Suspended Solids

mg/L

57.0

1240

68.0

18

SAMPLE DUPLICATE: 1089077

Parameter

Units

60131790001 Result

Dup Result

RPD

Max **RPD**

Qualifiers

Total Suspended Solids

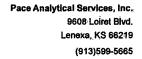
mg/L

1200

3

25

25





Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

QC Batch:

WETA/22230

Analysis Method:

EPA 300.0

QC Batch Method:

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples:

METHOD BLANK: 1088610

Matrix: Water

Associated Lab Samples:

60132044001

60132044001

Blank

Reporting

Parameter

Units

Units

Result

Limit Analyzed Qualifiers

Sulfate

mg/L

ND

10/28/12 14:07

LABORATORY CONTROL SAMPLE: 1088611

Parameter

Parameter

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Sulfate

mg/L

Units

mg/L

5.1

101

90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

1088612

1088613

90

Max

60131933014 Result

95.3

MS MSD Spike Spike Conc.

MS

MSD Result

MS % Rec

89

MSD % Rec

% Rec Limits

RPD RPD

Sulfate

Conc. 50

Result 50 140

140

61-119

10

Qual

Date: 11/08/2012 11:29 PM



QUALIFIERS

Project:

RICO ARGENTINE MINE SITE

Pace Project No.:

60132044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

Dissolved result is greater than the total. Data is within laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

RICO ARGENTINE MINE SITE

Pace Project No.: 60132044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Bätch
60132044001	SLSWP11121025	EPA 200.7	MPRP/20195	EPA 200.7	ICP/16526
60132044001	SLSWP11121025	EPA 200.7	MPRP/20194	EPA 200.7	ICP/16525
30132044001	SLSWP11121025	EPA 200.8	MPRP/20197	EPA 200.8	ICPM/1776
30132044001	SLSWP11121025	EPA 200.8	MPRP/20196	EPA 200.8	ICPM/1775
601320 44001	SLSWP11121025	SM 2320B	WET/37940		
80132044001	SLSWP11121025	SM 2540D	WET/37941		
60132044001	SLSWP11121025	EPA 300.0	WETA/22230		



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60132044

Client Name: BP Amec Project #:	
Courier: Fed Ex D UPS D USPS D Client D Community	Optional
Tracking #. 18 co.	Proj Due Date:
Custody Sail - S 1 -	Proj Name:
Packing Material: Bubble Wran D. Bubble D. D.	
Thermometer lead: Titos Titos	12 2plc
Cooler Temperature: Type of Ice: Wet Blue None Samples receive	ed on ice, cooling process has begun.
Date and	nitials of person examining
Chain of Custody present:	TOTAL TERM
Chain of Custody filled out:	
Chain of Custody relinquished:	
Sampler name & signature on COC: Sampler name & signature on COC:	
Samples arrived within holding time:	
Short Hold Time analyses (<72hr):	
Rush Turn Around Time requested: Tres ONO ON/A 7. Posh	
Sufficient volume:	
Correct containers used:	
Pace containers used:	
Containers intact:	
Unpreserved 5035A soils frozen w/in 48hrs2	
Filtered volume received for dissolved tests?	
Sample labels match COC: Ves No N/A	
Includes date/time/ID/analyses Matrix 44	
All containers needing preservation have been all 13.	
All containers needing preservation are found to be in	
compliance with EPA recommendation. Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	
LYes INO	# of added
□Yes □No □NVA	eservative
Pace Trip Blank lot # (if purchased): Headspace in VOA vials (>6mm):	
Yes No N/A	
16.	
Project sampled in USDA Regulated Area: Yes No N/A 17. List State:	Description of the second of t
Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required?	Y / N
Person Contacted: Date/Time: Temp I	
comments/ Resolution: when u	og: Record start and finish times npacking cooler, if >20 min,
Linder - Day - No rus TAT per Start:	sample temps
mader men 10/3/et 2 Ge revised Coc Find	
roject Manager Review. Mu tre (+) Date: 10/20/2 Temp:	135 End:



Laboratory Management Program Lab.. Chain of Custody Record

Req Due Date (mm/dd/yy):

BP/ARC Project Name: Rico-Argentine Mine Site____

	A BP affiliated company	BP/ARC Fac	cility No:	_		· .						· · ·			Lab	Worl	k Orc	ier N	umbe	er:							
Lab Na	me: Pace Analytical Laboratories,	Inc.		BP	/ARC	Facil	ity Ad	dress	i:	Rico	Argen	itine N	/ine			-			Cons	sultan	t/Cont	ractor		AME	C E&I, Inc.		
Lab Ad	dress: 9608 Loinet Blvd., Lenexa, K	S 66219	·	City, State, ZIP Code: Rico, Colorado 81332 Consultant/Contractor Project No.									o; SA11161302,200A														
Lab PM	t: Heather Wilson			Lea	ad Re	gulat	ory A	gency	:	U.S.	EPA F	Region	n 8			-,			Addr	ess:	1067	o Wh	ite Ro	cķ R	oad, Suite 100, Rand	to Cordova	, CA
Lab Ph	one: (913) 563-1407			Cal	ifomi	a Glo	bal II	No.:		NA									Cons	sultan	t/Cont	ractor	PM:	Man	Lombardi		
Lab Shi	ipping Acent: UPS #733W87			Enf	ios Pr	opos	al No). E		D009	D-002	24 (W	R 251	660)					Phor	10:	916-	336-3	200		-		
Lab Bo	ttle Order No: NA			Αœ	counti	ng M	ode:		Prov	vision	_x_	00	C-BU		00	C-RM	-	-	Ema	il Rep	ort/ED	D To:	lynd	a.lom	bardi@amec.com		
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EBM E	mail: anthony.brown@bp.com		60					Containers			1			i					8	ş	Ė	mand	ŀ		Full Data Pa	ckage	
Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Alr / Vapor		Total Number of Cont	Unpreserved	H ₂ SO,	HNO3	HCI		RUSH	Tot Metals-see notes E200.7/200.8/246.1)	Dis Metals-see notes (E200.7/200.8/245.1)	Dissolved Lithium (E200.7)	Sulfate E300.0)	Alkalinity-Total, HCO3, CO3, OH (SM2320B)	Fotal Suspended Solid SM2540D)	Fotal Organic Carbon SM 5310B)	Biological Oxygen Demand SM 5210B)	MS/MSD	HOLD	Cor Note: If sample not o Sample" in comment and initial any prepri	nments collected, indic is and single-s	trike out
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Atlantic Richfield Company
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Company
O A BP affiliated company

Laboratory Management Program Land Chain of Custody Record BP/ARC Project Name: Rico Argentine Mine Site Req Due Date (mm/dd/yy):

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ab PM: Heat	er Wilson		•	Lead Regulatory Agency: U.S. EPA Region 8											Address: 10870 White Rock Road, Suite 100, Rancho Cordova, CA														
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December 21, 2012

Lynda Lombardi AMEC Environmental & Infrastructure, Inc. 10670 White Rock Road Suite 100 Rancho Cordova, CA 95670

RE: Project: Rico-Argentine Mine Site

Pace Project No.: 60135088

Dear Lynda Lombardi:

Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2012. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

thaton m. Wilson

Heather Wilson

heather.wilson@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification:#: 2456:01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885 Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407-12-3 Utah Certification #: KS000212012-2



SAMPLE SUMMARY

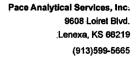
Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

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SAMPLE ANALYTE COUNT

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60135088016	P9RD1A121206 LEACHATE	EPA 6010	JGP	19
60135088017	P9RD1B121206 LEACHATE	EPA:6010	JGP	1,9
60135088018	P9RD1C121206 LEACHATE	EPA 6010	JGP	19
60135088019	P9RD2A121206 LEACHATE	EPA 6010	JGP	1,9
60135088020	P9RD2B121206 LEACHATE	EPA 6010	JGP	19
60135088021	P9RD2C121206 LEACHATE	EPA 6010	JGP	19
60135088022	P9W1A121206 LEACHATE	EPA 6010	JGP	19
60135088023	P9W1B121206 LEACHATE	EPA 6010	JGP	19
60135088024	P9W1C121206 LEACHATE	EPA 6010	JĢP	19
60135088025	P9W2A121206 LEACHATE	EPA 6010	JGP	19
60135088026	P9W2B121206 LEACHATE	EPA 6010	JGP	1,9
60135088027	P9W2C121206 LEACHATE	EPA 6010	JGP [°]	19
60135088028	P9W3A121206 LEACHATE	EPA 6010	JGP	19
60135088029	P9W3B121206 LEACHATE	EPA 6010	JGP	19
60135088030	P9W3C121206 LEACHATE	EPA 6010	JGP	19



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Method:

EPA 6010

Client:

Description: 6010 MET ICP

BP AMEC

Date:

December 21, 2012

General Information:

15 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/20844

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60135088016

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits,

- MSD (Lab ID: 1113782)
 - Manganese

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1113781)
 - Manganese
 - Selenium
 - Zinc
- MSD (Lab ID: 1113782)
 - Aluminum
 - Selenium
 - Zinc

QC Batch: MPRP/20842

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60135088030

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1113783)
 - Thallium

REPORT OF LABORATORY ANALYSIS

Page 5 of 30



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Method:

EPA 6010 Description: 6010 MET ICP

Client:

BP AMEC

Date:

December 21, 2012

QC Batch: MPRP/20842

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60135088030

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1113784)
 - Thallium

Additional Comments:

Analyte Comments:

QC Batch: MPRP/20842

2e: Post Digestion Spike Performed - 72.7% Recovery

- MS (Lab ID: 1113783)
 - Thallium
- MSD (Lab ID: 1113784)
 - Thallium

B: Analyte was detected in the associated method blank.

- P9W1A121206 LEACHATE (Lab ID: 60135088022)
 - Chromium
- P9W1B121206 LEACHATE (Lab ID: 60135088023)
 - Chromium
- · P9W1C121206 LEACHATE (Lab ID: 60135088024)
- P9W2A121206 LEACHATE (Lab ID: 60135088025)
- Chromium
- P9W2B121206 LEACHATE (Lab ID: 60135088026)
- Chromium • P9W2C121206 LEACHATE (Lab ID: 60135088027)
 - Chromium
- P9W3A121206 LEACHATE (Lab ID: 60135088028)
 - Chromium
- P9W3B121206 LEACHATE (Lab ID: 60135088029)
 - Chromium
- P9W3C121206 LEACHATE (Lab ID: 60135088030)
 - Chromium

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9W1A121206 LEACHATE (Lab ID: 60135088022)
 - Antimony
 - Selenium
 - Thallium
- P9W1B121206 LEACHATE (Lab ID: 60135088023)
 - Antimony
 - Selenium
 - Thallium
- P9W1C121206 LEACHATE (Lab ID: 60135088024)
 - Antimony

REPORT OF LABORATORY ANALYSIS

Page 6 of 30



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Method:

EPA 6010 Description: 6010 MET ICP

Client:

BP AMEC

Date:

December 21, 2012

Analyte Comments:

QC Batch: MPRP/20842

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9W1C121206 LEACHATE (Lab ID: 60135088024)
 - · Selenium
 - Thallium
- P9W2A121206 LEACHATE (Lab ID: 60135088025)
 - Silver
 - Beryllium
 - Antimony
 - Selenium:
 - Thallium
- P9W2B121206 LEACHATE (Lab ID: 60135088026)
 - Antimony
 - Selenium
 - Thallium
- P9W2C121206 LEACHATE (Lab ID: 60135088027)
 - Selenium
 - Thallium
- P9W3A121206 LEACHATE (Lab ID: 60135088028)
 - Antimony
 - Selenium
 - Thallium
- P9W3B121206 LEACHATE (Lab ID: 60135088029)
 - Antimony
 - Selenium
 - Thallium
- P9W3C121206 LEACHATE (Lab ID: 60135088030)
 - Antimony
 - Selenium
 - Thallium

QC Batch: MPRP/20844

- 1e: Post Digestion Spike Performed 141% Recovery
 - MSD (Lab ID: 1113782)
 - Aluminum.
- 3e: Post Digestion Spike Performed 95.8% Recovery
 - · MS (Lab ID: 1113781)
 - Selenium
 - MSD (Lab ID: 1113782)
 - Selenium
- B: Analyte was detected in the associated method blank.
 - P9RD1A121206 LEACHATE (Lab ID: 60135088016)
 - Chromium
 - Molybdenum

REPORT OF LABORATORY ANALYSIS

Page 7 of 30



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Method:

EPA 6010 Description: 6010 MET ICP

Client:

BP AMEC

Date:

December 21, 2012

Analyte Comments:

QC Batch: MPRP/20844

- B: Analyte was detected in the associated method blank.
- P9RD1B121206 LEACHATE (Lab ID: 60135088017)
 - Chromium
 - Lead
 - Molybdenum
- P9RD1C121206 LEACHATE (Lab ID: 60135088018)
 - Chromium
 - Lead
 - Molybdenum
- P9RD2A121206 LEACHATE (Lab ID: 60135088019)
 - Chromium
 - Lead
- P9RD2B121206 LEACHATE (Lab ID: 60135088020)
 - Chromium
 - Lead
- P9RD2C121206 LEACHATE (Lab ID: 60135088021)
 - Chromium
 - Lead
- D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
 - P9RD1A121206 LEACHATE (Lab ID: 60135088016)
 - Antimony
 - Selenium
 - Thallium
 - P9RD1B121206 LEACHATE (Lab ID: 60135088017)
 - Antimony
 - Selenium
 - Thallium
 - P9RD1C121206 LEACHATE (Lab ID: 60135088018)
 - Antimony
 - Selenium
 - Thallium
 - P9RD2A121206 LEACHATE (Lab ID: 60135088019)
 - Antimony
 - Selenium
 - Thallium
 - P9RD2B121206 LEACHATE (Lab ID: 60135088020)
 - Beryllium
 - Antimony
 - Selenium
 - Thallium
 - P9RD2C121206 LEACHATE (Lab ID: 60135088021)
 - Silver
 - Antimony

Page 8 of 30



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

Method:

EPA 6010

Description: 6010 MET ICP

Client:

BP AMEC

Date:

December 21, 2012

Analyte Comments:

QC Batch: MPRP/20844

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- P9RD2C121206 LEACHATE (Lab ID: 60135088021)
 - Selenium
 - Thallium

This data package has been reviewed for quality and completeness and is approved for release.



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

AMEC Leaching Log

Analyst 105	AMEC SOP 7.0, Revision 0: Rock Drain Matrix
Date: 12/13/12	AMEC SOP 8.0, Revision 0: Wetland Organic Matrix
Batch: 20844	
Hydroxylamine ID: 6604	Acetic acid ID: 6481
6M HCI ID:	Filter Paper ID: 4/A
Theremometer ID: _T 17	12 - 1
Temp. As-Read:	Corrected Temp. 85 °C
Time On:	Time Off: 17:30

Sample ID	Weight of beaker	Weight of sample +beaker	Weight of sample:	Final Volume
60135088-001	171.809	371.339	199.559	19475 m 100ml
60135088-002	182.509	383.049	200,55	1 75~1
60135088-003	172.88	372.99,	200.10,	white 75 mg 100m1
60135088-004	175,52g	374.98,	199.47	100ml
60135088-005	169.60,	369,18	199.69,	100ml
60135088-006	172.21	373.04	200.929	75ml
MB	169.83,	169.83	N/A	175ml
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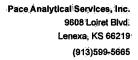
Pace Analytical Services, Inc. 9608 Loiret Bivd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

AMEC Leaching Log

Analyst NDT. AMEC	C SOP 7.0, Revision 0: Rock Drain Matrix
Date: 12/17/12 AMEC	C SOP 8.0, Revision 0: Wetland Organic Matrix
Batch: 20842	
Hydroxylamine ID:	Acetic acid ID:
6M HCI ID:	Filter Paper ID: 1441-125
Theremometer ID: T-	Correction Factor: C
Temp. As-Read: <u>₩A °C</u>	Corrected Temp C
Time On:	Time Off: 10:00

	pro remain, a second	<u> </u>			-
Sample ID	Weight of beaker	Weight of sample +beaker	Weight of sample	Final Volume	
60135088-022	178.947	280.273	101.349	+50-L 50-L	
60135088-023	185.519	285.75	100.25	180nt	ŧ
60135088-024	181.90	291.289	109.393	150mL	10
60135088-25	165.80	268.535	162.745	150 nt	1 //
60135088-26	171. 303	276.59	105.30	150 aL	211
60135088-27	180.96	287.805	104.855	150al	
60135088-28	169.859	277.229	107.385	150mL	
60135088-29	169.70	261.639	91.953	150mL V	
60135088-30	174.119	285.435	111.315	150-L 150-L	
MB	184.085	184.085	NA	150mt Dat	
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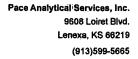


Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9RD1A121206 LEA	CHATE Lab ID: 601350880	16 Collected	i: 12/06/12	2 13:45	Received: 12/	10/12:08:15 Ma	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EP/	A 6010 Prepar	ation Meth	od: EP/	N 3010	•		
Aluminum.	20700 ug/L	150	50.0	2	12/13/12 10:00	12/20/12 10:58	7429-90-5	M1
Antimony	ND ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 10:58	7440-36-0	D3
Arsenic	36.1 ug/L	20.0	9,2	2	12/13/12 10:00	12/20/12 10:58	7440-38-2	
Barlum:	1780 ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 10:58	7440-39-3	
Berytlium	6.8 ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 10:58	7440-41-7	
Cadmium	114 ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 10:58	7440-43-9	
Chromium	20.4 ug/L	10.0	1.4	2	12/13/12 10:00	12/20/12 10:58	7440-47-3	В
Cobalt	94.2 ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 10:58	7440-48-4	
Copper	851 ug/L	50.0	5.0	5	12/13/12 10:00	12/20/12 13:48	7440-50-8	
Iron	45100 ug/L	100	34.4	2	12/13/12 10:00	12/20/12 10:58	7439-89-6	
Lead	3060 ug/L	25.0	12.0	5	12/13/12 10:00	12/20/12 13:48	7439-92-1	
Manganese	50400 ug/L	25.0	3:0	5	12/13/12 10:00	12/20/12 13:48	7439-96-5	M1
Molybdenum	23,8J ug/L	40.0	3:0	2 -	12/13/12 10:00	12/20/12 10:58	7439-98-7	В
Nickel	139 ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 10:58	7440-02-0	
Selenium	ND ug/L	30.0	5.4	2	12/13/12 10:00	12/20/12 10:58	7782-49-2	D3,M1
Silver	8.9J: ug/L	14.0	2.6	2	12/13/12 10:00	12/20/12 10:58	7440-22-4	• •
Thallium	ND ug/L	40.0	8.6	- 2	12/13/12 10:00	12/20/12 10:58	7440-28-0	D3
Vanadium	157 ug/L	20.0	2.4	2	12/13/12 10:00	12/20/12 10:58	7440-62-2	
Zinc	28300 ug/L	100	14.6	2	12/13/12 10:00	12/20/12 10:58	7440-66-6	M1





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9RD1B121206 LEA	CHATE Lab ID: 6013508	8017 Collected	1: 12/06/1	2 14:15	Received: 12/	10/12 08:15 Ma	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method:	EPA 6010 Prepar	ration Meth	od: EPA	3010			
Aluminum	28700 ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:15	7429-90-5	
Antimony	ND ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 11:15	7440-36-0	D3
Arsenic	30.7 ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:15	7440-38-2	
Barium	3640 ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:15	7440-39-3	
Beryllium	6.8 ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:15	7440-41-7	
Cadmium	126 ug/L	10,0	0.78	2	12/13/12 10:00	12/20/12 11:15	7440-43-9	
Chromium	30.2J ug/L	50.0	6.9	10	12/13/12 10:00	12/20/12 14:12	7440-47-3	В
Cobalt	232 ug/L	10.0	1.5°	2	12/13/12 10:00	12/20/12 11:15	7440-48-4	
Copper	648 ug/L	100	9.9	10	12/13/12 10:00	12/20/12 14:12	7440-50-8	
Iron	56800 ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:15	7439-89-6	
Lead	426 ug/L	50.0	24.0	10	12/13/12 10:00	12/20/12 14:12	7439-92-1	В
Manganese	104000 ug/L	50.0	6.0	10	12/13/12 10:00	12/20/12 14:12	7439-96-5	
Molybdenum	29.6J ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:15	7439-98-7	В
Nickel	208 ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:15	7440-02-0	
Selenium	ND ug/L	150	27.0	10	12/13/12 10:00	12/20/12 14:12	7782-49-2	D3
Silver	17.0 ug/L	14.0	2,6	2	12/13/12 10:00	12/20/12 11:15	7440-22-4	
Thallium	ND ug/L	200	43.0	10	12/13/12 10:00	12/20/12 14:12	7440-28-0	D3
Vanadium	259 ug/L	100	12.0	10	12/13/12 10:00	12/20/12 14:12	7440-62-2	
Zinc	33200 ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:15	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9RD1C121206 LEA	CHATE Lab ID: 601350880	018 Collected	1: 12/06/12	2 14:30	Received: 12/	10/12 08:15 M	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EF	A 6010 Prepar	ation Meth	od: EPA	3010			
Aluminum	14000 ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:18	7429-90-5	
Antimony	ND ug/L	20.0	6.2	2	12/13/12 10:00	12/20/12 11:18	7440-36-0	D3
Arsenic	58,7 ug/L	20:0	9.2	2	12/13/12 10:00	12/20/12 11:18	7440-38-2	
Barlum	.3510 ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:18	7440-39-3	
Beryllium	1.3J ug/L	2:0	1.0	2	12/13/12 10:00	12/20/12 11:18	7440-41-7	
Cadmium:	138 ug/L	10.0	0.78	2	12/13/12 10:00	12/20/12 11:18	7440-43-9	
Chromium	20.9J ug/L	25:0	3.4	5	12/13/12 10:00	12/20/12 14:05	7440-47-3	В
Cobalt	146 ug/L	10:0	1.5	2	12/13/12 10:00	12/20/12 11:18	7440-48-4	
Copper	441 ug/L	50:0	5.0	5	12/13/12 10:00	12/20/12 14:05	7440-50-8	
Iron	23300 ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:18	7439-89-6	
Lead	302 ug/L	25.0	12.0	-5	12/13/12 10:00	12/20/12 14:05	7439-92-1	В
Manganese	65800 ug/L	25.0	3.0	-5	12/13/12 10:00	12/20/12 14:05	7439-96-5	
Molybdenum	19.0J ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:18	7439-98-7	B .
Nickel	258 ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:18	7440-02-0	
Selenium	ND ug/L	75.0	13.5	5	12/13/12 10:00	12/20/12 14:05	7782-49-2	D3
Silver	8.4J ug/L	14.0	2.6	2	12/13/12 10:00	12/20/12 11:18	7440-22-4	
Thallium -	ND ug/L	100	21.5	5	12/13/12 10:00	12/20/12 14:05	7440-28-0	D3
Vanadium	272 ug/L	50.0	6.0	5	12/13/12 10:00	12/20/12 14:05	7440-62-2	
Zinc	12200 ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:18	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9RD2A121206 LEAC	CHATE Lab ID:	60135088019	Collected	: 12/06/12	14:00	Received: 12/	10/12 08:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepara	ation Meth	od: EPA	\.3010			
Aluminum	27600 i	ıg/L	750	250	10	12/13/12 10:00	12/20/12 14:22	7429-90-5	•
Antimony	ND u	ıg/L	20.0	6.2	2	12/13/12 10:00	12/20/12 11:22	7440-36-0	D3
Arsenic	38.3 u	ıg/L	20:0	9.2	.2	12/13/12 10:00	12/20/12 11:22	7440-38-2	
Barium	2760 u	ıg/L	100	7.7	10	12/13/12 10:00	12/20/12 14:22	7440-39-3	
Beryllium	7.4J u		10.0	5.0	10	12/13/12 10:00	12/20/12 14:22	7440-41-7	
Cadmium	147 t	ıg/L	10:0	0.78	.2	12/13/12 10:00	12/20/12 11:22	7440-43-9	
Chromium	30.6J u	ıg/L	50.0	6.9	10	12/13/12 10:00	12/20/12 14:22	7440-47-3	B [,]
Cobalt	260 u	ıg/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:22	7440-48-4	
Copper	797 ι		100	9.9	10	12/13/12 10:00	12/20/12 14:22	7440-50-8	
Iron:	59500 t	ig/L	500	172	10	12/13/12 10:00	12/20/12 14:22	7439-89-6	
Lead	579 L	ıg/L	50.0	24.0	10	12/13/12 10:00	12/20/12 14:22	7439-92-1	В
Manganese	153000 t		50.0	6.0	10	12/13/12 10:00	12/20/12 14:22	7439-96-5	
Molybdenum	48,2 t		40.0	3.0	2	12/13/12 10:00	12/20/12 11:22	7439-98-7	
Nickel	263 L		10.0	1.6	2	12/13/12 10:00	12/20/12 11:22	7440-02-0	
Selenium	ND L	-	150	27.0	10	12/13/12 10:00	12/20/12 14:22	7782-4 9 -2	D3
Silver	22.1 u	ig/L	14.0	2.6	2	12/13/12 10:00	12/20/12 11:22	7440-22-4	
Thallium	ND t	ıg/L	200	43.0	10	12/13/12 10:00	12/20/12 14:22	7440-28-0	D3
Vanadium -	264 L		100	12.0	10	12/13/12 10:00	12/20/12 14:22	7440-62-2	
Zinc	38800 L		100	14.6	2	12/13/12 10:00	12/20/12 11:22	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9RD2B121206 LEA	CHATE Lab ID: 601350880	20 Collected	1: 12/06/12	2 14:25	Received: 12/	10/12 08:15 M	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EP	A 6010 Prepai	ration Meth	od: EPA	3010			
Aluminum	11100 ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:40	7429-90-5	
Antimony	ND ug/L	50.0	15.5	5	12/13/12 10:00	12/20/12 14:08	7440-36-0	D3
Arsenic	71.6 ug/L	20,0	9.2	2	12/13/12 10:00	12/20/12 11:40	7440-38-2	
Barium	3000 ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:40	7440-39-3	
Berytlium	ND ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:40	7440-41-7	D3
Cadmium	171 ug/L	10,0	0.78	2	12/13/12 10:00	12/20/12 11:40	7440-43-9	
Chromium	18.2J ug/L	25.0	3.4	5	12/13/12 10:00	12/20/12 14:08	7440-47-3	В
Cobalt	85.7 ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:40	7440-48-4	
Copper	623 ug/L	50.0	5.0	5	12/13/12 10:00	12/20/12 14:08	7440-50-8	
Iron	20800 ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:40	7439-89-6	
Lead	224 ug/L	25.0	12.0	5	12/13/12 10:00	12/20/12 14:08	7439-92-1	В
Manganese	61000 ug/L	25.0	3.0	5	12/13/12 10:00	12/20/12 14:08	7439-96-5	
Molybdenum	41.8 ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:40	7439-98-7	
Nickel	155 ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:40	7440-02-0	
Selenium	ND ug/L	75.0	13.5	5	12/13/12 10:00	12/20/12 14:08	7782-49-2	D3
Silver	8.0J ug/L	35.0	6.5	5	12/13/12 10:00	12/20/12 14:08	7440-22-4	
Thallium	ND ug/L	100	21.5	5	12/13/12 10:00	12/20/12 14:08	7440-28-0	D3
Vanadium	293 ug/L	50.0	6.0	5	12/13/12 10:00	12/20/12 14:08	7440-62-2	
Zinc	24600 ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:40	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9RD2C121206 LEAC	CHATE Lab ID: 601350	088021 Collected	d: 12/06/1	2 14:40	Received: 12/	10/12 08:15 M	atrix: Water	
Parameters	Results Unit	Report s Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method	l: EPA 6010 Prepar	ration Meth	od: EPA	3010			
Aluminum	15600 ug/L	150	50.0	2	12/13/12 10:00	12/20/12 11:44	7429-90-5	
Antimony	ND ug/L	200	62.0	20	12/13/12 10:00	12/20/12 14:26	7440-36-0	D3
Arsenic	69.4 ug/L	20.0	9.2	2	12/13/12 10:00	12/20/12 11:44	7440-38-2	
Barium	4350 ug/L	20.0	1.5	2	12/13/12 10:00	12/20/12 11:44	7440-39-3	
Beryllium	2.6 ug/L	2.0	1.0	2	12/13/12 10:00	12/20/12 11:44	7440-41-7	
Cadmium	239 ug/L	10,0	0.78	2	12/13/12 10:00	12/20/12 11:44	7440-43-9	
Chromium	23.8J ug/L	100	13.8	20	12/13/12 10:00	12/20/12 14:26	7440-47-3	В
Cobalt	312 ug/L	10.0	1.5	2	12/13/12 10:00	12/20/12 11:44	7440-48-4	
Copper	1260 ug/L	200	19.8	20	12/13/12 10:00	12/20/12 14:26	7440-50-8	
fron	32700 ug/L	100	34.4	2	12/13/12 10:00	12/20/12 11:44	7439-89-6	
Lead	883 ug/L	100	48.0	20	12/13/12 10:00	12/20/12 14:26	7439-92-1	В
Manganese	218000 ug/L	100	12.0	20	12/13/12 10:00	12/20/12 14:26	7439-96-5	
Molybdenum	100 ug/L	40.0	3.0	2	12/13/12 10:00	12/20/12 11:44	7439-98-7	
Nickel	755 ug/L	10.0	1.6	2	12/13/12 10:00	12/20/12 11:44	7440-02-0	
Selenium	ND ug/L	300	54.0	20	12/13/12 10:00	12/20/12 14:26	7782-49-2	D3
Silver	ND ug/L	140	26.0	20	12/13/12 10:00	12/20/12 14:26	7440-22-4	D3
Thallium	ND ug/L	400	86.0	20	12/13/12 10:00	12/20/12 14:26	7440-28-0	D3
Vanadium:	1050 ug/L	200	24.0	20	12/13/12 10:00	12/20/12 14:26	7440-62-2	
Zinc	21200 ug/L	100	14.6	2	12/13/12 10:00	12/20/12 11:44	7440-66-6	



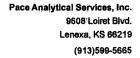


Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W1A121206 LEACHATE	Lab ID:	60135088022	Collected	12/06/12	15:40	Received: 12/	10/12:08:15 M	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA 6	010 Prepara	ition Meth	od: EPA	3010			,
Aluminum.	62500 u	ıg/L	150	50:0	2	12/17/12 16:45	12/18/12 17:30	7429-90-5	
Antimony	ND u	ıg/Ľ	20.0	6.2	2	12/17/12 16:45	12/18/12 17:30	7440-36-0	D3
Arsenic	50.0 u	ig/L	20,0	9,2	2	12/17/12 16:45	12/18/12 17:30	7440-38-2	
Barium	3860 U	ıg/L	100	77	1.0	12/17/12 16:45	12/19/12 10:50	7440-39-3	
Beryllium	7.5 `∪	ıg/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:30	7440-41-7	
Cadmium	54,9· u	ıg/L	50.0	3.9	10	12/17/12 16:45	12/19/12 10:50	7440-43-9	
Chromium	66.5 U	ıg/Ŀ	50.0	6.9	10	12/17/12 16:45	12/19/12 10:50	7440-47-3	В
Cobalt	101 u	ıg/L	50.0	7.6	10	12/17/12 16:45	12/19/12 10:50	7440-48-4	
Copper	773 u	ıg/L	100	9:9	10	12/17/12 16:45	12/19/12 10:50	7440-50-8	
Iron	206000 U	ıg/L	100	34.4	2	12/17/12 16:45	12/18/12 17:30	7439-89-6	
Lead	1930 ü		50.0	24.0	10	12/17/12 16:45	12/19/12 10:50	7439-92-1	
Manganese	18400 u	ıg/L	50.0	6.0	10	12/17/12 16:45	12/19/12 10:50	7439-96-5	
Molybdenum	15.5J u	ıg/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:30	7439-98-7	
Nickel	216 u	ıg/L	50.0	8.0	10	12/17/12 16:45	12/19/12 10:50	7440-02-0	
Selenium	'ND ti	ıg/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:30	7782-49-2	D3
Silver	25.6 u	_	14.0	2.6	2	12/17/12 16:45	12/18/12 17:30	7440-22-4	
Thallium	ND t	ıg/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:30	7440-28-0	D3
Vanadium	356 L		100	12.0	10	12/17/12 16:45	12/19/12 10:50	7440-62-2	
Zinc	7500 u		500	73.0	10	12/17/12 16:45	12/19/12 10:50	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W1B121206 LEACHATE	Lab ID:	60135088023	Collected:	12/06/12	15:50	Received: 12/	10/12 08:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical i	Method: EPA 6	010 Prepara	tion Meth	od: EPA	3010			
Aluminum	62400 ug	3/L	150	50.0	2	12/17/12 16:45	12/18/12 17:34	7429-90-5	
Antimony	ND ug	3/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:34	7440-36-0	D3
Arsenic	55.6 ug	;/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:34	7440-38-2	
Barium	5020 ug	1/L	100	7.7	10	12/17/12 16:45	12/19/12 10:53	7440-39-3	
Beryllium	14.4 ug	ı/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:34	7440-41-7	
Cadmium	239 ug	ı/L	50.0	3.9	10	12/17/12 16:45	12/19/12 10:53	7440-43-9	
Chromium-	71.3 ug	ı/L	50.0	6.9	10	12/17/12 16:45	12/19/12 10:53	7440-47-3	В
Cobalt	172 ug	ı/L	50.0	7.6	10	12/17/12 16:45	12/19/12 10:53	7440-48-4	
Copper	1350 ug	ı/L	100	9.9	10	12/17/12 16:45	12/19/12 10:53	7440-50-8	
Iron	216000 ug]/L	100	34.4	2	12/17/12 16:45	12/18/12 17:34	7439-89-6	
Lead	1600 ug	;/L	50.0	24.0	10	12/17/12 16:45	12/19/12 10:53	7439-92-1	
Manganese	40600 ug	ı/L	50.0	6.0	10	12/17/12 16:45	12/19/12 10:53	7439-96-5	
Molybdenum	14.9J ug	ı/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:34	7439-98-7	
Nickel	297 ug	1/L	50.0	8.0	10	12/17/12 16:45	12/19/12 10:53	7440-02-0	
Selenium	ND ug		30.0	5.4	2	12/17/12 16:45	12/18/12 17:34	7782-49-2	D3
Silver	23.7 ug		14.0	2.6	2	12/17/12 16:45	12/18/12 17:34	7440-22-4	
Thallium	ND ug		40.0	8.6	2	12/17/12 16:45	12/18/12 17:34	7440-28-0	D3
Vanadium	372 ug		1.00	12.0	10	12/17/12 16:45	12/19/12 10:53	7440-62-2	
Zinc	36800 ug		500·	73.0	10	12/17/12 16:45	12/19/12 10:53	7440-66-6	

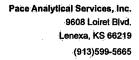


Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W1C121206 LEACHATE	Lab ID: 6013508	8024 Collected	1: 12/06/12	2 16:00	Received: 12/	10/12 08:15 Ma	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: I	EPA 6010 Prepai	ation Meth	od: EPA	3010			
Aluminum	58900 ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:37	7429-90-5	
Antimony	ND ug/L	20:0	6.2	2	12/17/12 16:45	12/18/12 17:37	7440-36-0	D3
Arsenic	52.8 ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:37	7440-38-2	
Barium	4440 ug/L	100	7.7	10	12/17/12 16:45	12/19/12 10:56	7440-39-3	
Beryllium	8.9 ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:37	7440-41-7	
Cadmium	77.0 ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 10:56	7440-43-9	
Chromium	81.8 ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 10:56	7440-47-3	В
Cobalt	121 ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 10:56	7440-48-4	
Copper	879 ug/L	100	9.9	10	12/17/12 16:45	12/19/12 10:56	7440-50-8	
Iron	197000 ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:37		
Lead	1720 ug/L	50:0	24.0	10	12/17/12 16:45	12/19/12 10:56		
Manganese	24500 ug/L	50:0	6.0	10	12/17/12 16:45	12/19/12 10:56	7439-96-5	
Molybdenum	10.9J ug/L	40:0	3.0	2	12/17/12 16:45	12/18/12 17:37	7439-98-7	
Nickel	241 ug/L	50:0	8.0	10	12/17/12 16:45	12/19/12 10:56	7440-02-0	
Selenium	ND ug/L	30:0	5.4	2	12/17/12 16:45	12/18/12 17:37		D3
Silver	22.6 ug/L	14:0	2.6	2	12/17/12 16:45	12/18/12 17:37		
Thallium	ND ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:37	7440-28-0	D3
Vanadium	383 ug/L	100	12.0	10	12/17/12 16:45	12/19/12 10:56		
Zinc	10400 ug/L	500	73.0	10	12/17/12 16:45	12/19/12 10:56		





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W2A121206 LEAC	HATE Lab ID:	6013508802	5 Collecte	d: 12/06/1	16:10	Received: 12/	10/12 08:15 M	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	×3010			
Aluminum	5470 0 ug	g/L .	750	250	10	12/17/12 16:45	12/19/12 11:03	7429-90-5	-
Antimony	ND u	g/L	20.0	6,2	2	12/17/12 16:45	12/18/12 17:41	7440-36-0	D3
Arsenic	69.7 ug		20.0	9,2	2	12/17/12 16:45	12/18/12 17:41	7440-38-2	
Barium	2810 ug		100	7.7	10	12/17/12 16:45	12/19/12 11:03	7440-39-3	
Beryllium	ND ug		10.0	5,0	10	12/17/12 16:45	12/19/12 11:03	7440-41-7	D3
Cadmium	44.8J ug		50.0	3.9	10	12/17/12 16:45	12/19/12 11:03	7440-43-9	
Chromium	74.8 ug		50:0	6.9	10	12/17/12 16:45	12/19/12 11:03	7440-47-3	В
Cobalt	83.6 ug	g/L	50.0	7,6	10	12/17/12 16:45	12/19/12 11:03	7440-48-4	
Copper ~	895 ug		100	9.9	10	12/17/12 16:45	12/19/12 11:03	7440-50-8	
Iron	150000 ug		100	34.4	2	12/17/12 16:45	12/18/12 17:41	7439-89-6	
Lead	1370 uç		50.0	24.0	10	12/17/12 16:45	12/19/12 11:03	7439-92-1	
Manganese	23700 ug		50.0	6.0	10	12/17/12 16:45	12/19/12 11:03	7439-96-5	
Molybdenum	11.7J ug		40.0	3.0	2	12/17/12 16:45	12/18/12 17:41	7439-98-7	
Nickel:	158 ug		50.0	8.0	10	12/17/12 16:45	12/19/12 11:03	7440-02-0	
Selenium	ND uç		30.0	5.4	2	12/17/12 16:45	12/18/12 17:41	7782-49-2	D3
Silver	ND uç		70.0	13.0	10	12/17/12 16:45	12/19/12 11:03	7440-22-4	D3
Thallium	ND úg		40:0	8.6	2	12/17/12 16:45	12/18/12 17:41	7440-28-0	D3
Vanadium	319 uç		100	12.0	-10	12/17/12 16:45	12/19/12 11:03	7440-62-2	
Zinc	4670 uç		500	73.0	10	12/17/12 16:45	12/19/12 11:03	7440-66-6	



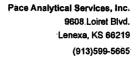


Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W2B121206 LEACHATE	Lab ID:	60135088026	Collected:	12/06/12	2 16:15	Received: 12/	10/12 08:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA 6	010 Prepara	tion Meth	od: EPA	3010	•		
Atuminum	71500 ug	g/L	150	50:0	2	12/17/12 16:45	12/18/12 17:44	7429-90-5	
Antimony	ND ug	g/L	20,0	6.2	2	12/17/12 16:45	12/18/12 17:44	7440-36-0	D3-
Arsenic	48.3 ug	g/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:44	7440-38-2	
Barium	5450 ug]/L	100	7.7	10	12/17/12 16:45	12/19/12 11:07	7440-39-3	
Beryllium	10.6 ug	g/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:44	7440-41-7	
Cadmium	112 ug		50,0	3.9	10	12/17/12 16:45	12/19/12 11:07	7440-43-9	
Chromium	78.5 ug	g/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:07	7440-47-3	В
Cobalt	135 ug	g/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:07	7440-48-4	
Copper	945 ug	g/L	100	9.9	10	12/17/12 16:45	12/19/12 11:07	7440-50-8	
Iron	223000 ug	g/L	100	34.4	2	12/17/12 16:45	12/18/12 17:44	7439-89-6	
Lead	1660 ug	g/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:07	7439-92-1	
Manganese	38800 ug		50.0	6.0	10	12/17/12 16:45	12/19/12 11:07	7439-96-5	
Molybdenum-	7.4J ug	g/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:44	7439-98-7	
Nickel	274 ug		50.0	8.0	10	12/17/12 16:45	12/19/12 11:07	7440-02-0	
Selenium	ND ug	g/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:44	7782-49-2	D3
Silver	22,7 ug		14.0	2.6	2	12/17/12 16:45	12/18/12 17:44	7440-22-4	
Thallium	ND ug		40.0	8.6	2	12/17/12 16:45	12/18/12 17:44	7440-28-0	D3
Vanadium	424 ug		100	12.0	10	12/17/12 16:45	12/19/12 11:07	7440-62-2	
Zinc	15700 ug		500	73.0	10	12/17/12 16:45	12/19/12 11:07	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W2C121206 LEACHATE	Lab ID: 601350	B8027 Collected	1: 12/06/1	2 16:25	Received: 12/	10/12 08:15 Ma	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method:	EPA 6010 Prepar	ation Meth	od: EPA	3010		•	
Aluminum	54600 ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:48	7429-90-5	
Antimony	8.9J ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:48	7440-36-0	
Arsenic	46.9 ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:48	7440-38-2	
Barium	3620 ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:10	7440-39-3	
Beryllium	8.7 ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:48	7440-41-7	
Cadmium	99.4 ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:10	7440-43-9	
Chromium	66.0 ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:10	7440-47-3	В
Cobalt	113 ug/L	50.0	7.6	10	12/1/7/12 16:45	12/19/12 11:10	7440-48-4	
Copper	909 ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:10	7440-50-8	
Iron	170000 ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:48	7439-89-6	
Lead	1300 ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:10	7439-92-1	
Manganese	22900 ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:10	7439-96-5	
Molybdenum	15.0J ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:48	7439-98-7	
Nickel	212 ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:10	7440-02-0	
Selenium	ND ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:48	7782-49-2	D3·
Silver	21.1 ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:48	7440-22-4	
Thallium	ND ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:48		D3
Vanadium	325 ug/L	100	12:0	10	12/17/12 16:45	12/19/12 11:10	7440-62-2	
Zinc	14200 ug/L	500	73:0	10	12/17/12 16:45	12/19/12 11:10	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W3A121206 LEACHATE	Lab ID: 60135	088028 Collected	: 12/06/12	2 16:40	Received: 12/	10/12 08:15 Ma	atrix: Water	
		Report						
Parameters	Results Unit	-	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method	I: EPA 6010 Prepar	ation Meth	od: EPA	3010			
Aluminum	46300 ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:51	7429-90-5	
Antimony	ND ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:51	7440-36-0	D3
Arsenic	33.6 ug/L	20.0	9:2	2	12/17/12 16:45	12/18/12 17:51	7440-38-2	
Barium	3070 ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:13	7440-39-3	
Beryllium	5.7 ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:51	7440-41-7	
Cadmium	37.9J ug/L	50.0	3:9	10	12/17/12 16:45	12/19/12 11:13	7440-43-9	
Chromium	55.0 ug/L	50.0	6.9	1.0	12/17/12 16:45	12/19/12 11:13	7440-47-3	В
Cobalt	70.0 ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:13	7440-48-4	
Copper	548 ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:13	7440-50-8	
iron	127000 ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:51	7439-89-6	
Lead	894 ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:13	7439-92-1	
Manganese	16000 ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:13	7439-96-5	
Molybdenum	3.9J ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:51	7439-98-7	
Nickel	168 ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:13	7440-02-0	
Selenium	ND ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 17:51	7782-49-2	D3
Silver	13.5J ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:51	7440-22-4	
Thallium	ND ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:51	7440-28-0	D3
Vanadium	259 ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:13	7440-62-2	
Zinc	5350 ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:13	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W3B121206 LEACHATE	Lab ID: 6013508802	29 Collected	d: 12/06/12	2 16:35	Received: 12/	/10/12 08:15 Ma	trix: Water	
•		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA	\:6010 Prepar	ration Meth	od: EPA	A.3010			
Aluminum	44100 ug/L	150	50.0	2	12/17/12 16:45	12/18/12 17:55	7429-90-5	
Antimony	ND ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 17:55	7440-36-0	D3
Arsenic	38.0 ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 17:55	7440-38-2	
Barium	2930 ug/L	100	7.7	10	12/17/12 16:45	12/19/12 11:17	7440-39-3	
Beryllium	8,7 ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 17:55	7440-41-7	
Cadmium	62,7 ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:17	7440-43-9	
Chromium	55.9 ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:17	7440-47-3	В
Cobalt	72.8 ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:17	7440-48-4	
Copper	673 ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:17	7440-50-8	
Iron	149000 ug/L	100	34.4	2	12/17/12 16:45	12/18/12 17:55	7439-89-6	
Lead	994 ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:17	7439-92-1	
Manganese	19200 ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:17	7439-96-5	
Molybdenum	5.0J ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 17:55	7439-98-7	
Nickel	164 ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:17	7440-02-0	
Selenium	ND ug/L	30:0	5.4	2	12/17/12 16:45	12/18/12 17:55	7782-49-2	D3
Silver	15.1 ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 17:55	7440-22-4	
Thallium	ND ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 17:55	7440-28-0	D3
Vanadium	288 ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:17	7440-62-2	
Zinc	8820 ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:17	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

Sample: P9W3C121206 LEACHATE	Lab ID: 60135088030	Collected	1: 12/06/12	16:30	Received: 12/	/10/12 ⁻ 08:15 Ma	atrix: Water	
•		Report		,				
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA	010 Prepai	ation Meth	od: EPA	3010			
Aluminum	82800 ug/L	150	50.0	2	12/17/12 16:45	12/18/12 18:05	7429-90-5	
Antimony	ND ug/L	20.0	6.2	2	12/17/12 16:45	12/18/12 18:05	7440-36-0	D3
Arsenic	54.9 ug/L	20.0	9.2	2	12/17/12 16:45	12/18/12 18:05	7440-38-2	
Barium	5520 ug/L	100	77	10	12/17/12 16:45	12/19/12 11:27	7440-39-3	
Beryllium	10.7 ug/L	2.0	1.0	2	12/17/12 16:45	12/18/12 18:05	7440-41-7	
Cadmium	92.2 ug/L	50.0	3.9	10	12/17/12 16:45	12/19/12 11:27	7440-43-9	
Chromium	100 ug/L	50.0	6.9	10	12/17/12 16:45	12/19/12 11:27	7440-47-3	В
Cobalt	151 ug/L	50.0	7.6	10	12/17/12 16:45	12/19/12 11:27	7440-48-4	
Copper	1100 ug/L	100	9.9	10	12/17/12 16:45	12/19/12 11:27	7440-50-8	
Iron	340000 ug/L	500	172	10	12/17/12 16:45	12/19/12 11:27	7439-89-6	M6
Lead	2160 ug/L	50.0	24.0	10	12/17/12 16:45	12/19/12 11:27	7439-92-1	
Manganese	32900 ug/L	50.0	6.0	10	12/17/12 16:45	12/19/12 11:27	7439-96-5	M6
Molybdenum	6.8J ug/L	40.0	3.0	2	12/17/12 16:45	12/18/12 18:05	7439-98-7	
Nickel	341 ug/L	50.0	8.0	10	12/17/12 16:45	12/19/12 11:27	7440-02-0	
Selenium	ND ug/L	30.0	5.4	2	12/17/12 16:45	12/18/12 18:05	7782-49-2	D3
Silver	29.2 ug/L	14.0	2.6	2	12/17/12 16:45	12/18/12 18:05	7440-22-4	
Thallium	ND ug/L	40.0	8.6	2	12/17/12 16:45	12/18/12 18:05	7440-28-0	D3,M1
Vanadium	501 ug/L	100	12.0	10	12/17/12 16:45	12/19/12 11:27	7440-62-2	•
Zinc	11500: ug/L	500	73.0	10	12/17/12 16:45	12/19/12 11:27	7440-66-6	





Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

QC Batch:

MPRP/20842

Analysis Method:

EPA 6010

QC Batch Method:

EPA 3010

Analysis Description:

6010 MET

Associated Lab Samples:

60135088022, 60135088023, 60135088024, 60135088025, 60135088026, 60135088027, 60135088028,

60135088029, 60135088030

METHOD BLANK: 1113740

Matrix: Water

Associated Lab Samples:

60135088022, 60135088023, 60135088024, 60135088025, 60135088026, 60135088027, 60135088028,

60135088029, 60135088030

00	133000025, 00133000030	,			
Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	31.6J	75.0	12/18/12 17:23	
Antimony	ug/L	ND	10.0	12/18/12 17:23	
Arsenic	ug/L	ND	10.0	12/18/12 17:23	
Barium	ug/L	2.5J	10.0	12/18/12 17:23	
Beryllium	ug/L	ND	1.0	12/18/12 17:23	
Cadmium	ug/L	ND	5.0	12/18/12 17:23	
Chromium	ug/L	4.1J	5.0	12/19/12 10:46	
Cobalt	ug/L	ND	5.0	12/18/12 17:23	
Copper	ug/L	1.8J	10.0	12/18/12 17:23	
Iron	ug/L	278	50.0	12/18/12 17:23	
Lead	ug/L	7.7	5.0	12/19/12 10:46	
Manganese	ug/L	ل:4.8	5.0	12/18/12 17:23	
Molybdenum	ug/L	ND	20.0	12/18/12 17:23	
Nickel	ug/L	1.05	5.0	12/18/12 17:23	
Selenium	ug/L	ND	15.0	12/18/12 17:23	
Silver	ug/L	ND	7.0	12/18/12 17:23	
Thallium	ug/L	ND	20.0	12/18/12 17:23	
Vanadium	ug/L	ND	10.0	12/18/12 17:23	
Zinc	ug/L	24.2J	50.0	12/18/12 17:23	

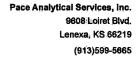
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Aluminum	ug/L	10000	10100	101	80-120	
Antimony	ug/L	1000	1030	103	80-120	
Arsenic	ug/L	1000	999	100	80-120	
Barium	ug/L	1000	980	98	80-120	
Beryllium	ug/L	1000	982	98	80-120	
Cadmium	ug/L	1,000	998	100	80-120	
Chromium -	ug/L	1000	996	100	80-120	
Cobalt	ug/L	1000	1030	103	80-120	
Copper	ug/L	1,000	957	96	80-120	
lron	ug/L	10000	9140	91	80-120	
Lead	ug/L	1000	992	-99	80-120	
Manganese	ug/L	1000	973	97	80-120	
Molybdenum	ug/L	1000	1020	102	80-120	
Nickel	ug/L	1000	1030	103	80-120	
Selenium	ug/Ĺ	1000	984	98	80-120	
Silver	ug/L	500	480	96	80-120	
Thalllum	ug/L	1000	1050	105	80-120	

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REPORT OF LABORATORY ANALYSIS

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

LABORATORY CONTROL SAMPLE:	1113741	

Parameter	Units-	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadlum	ug/L	1000	962	96	80-120	
Zinc	ug/L	1000	972	97	80-120	

Parameter Aluminum ug/ Antimony ug/	Units L L	85088030 Result 82800 ND	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec		Max	
Aluminum ug/	Units L L	Result 82800	Conc.	Conc.								
Aluminum ug/	L L	82800		 ,	Result	Result	% Rec	% Rec	I Ination			
	Ĺ		10000	10000			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	70 INGC	Limits	RPD	RPD	Qual
Antimony ug/		ND		10000	92600	93000	97	102	75-125		20	
	L		1000	1000	828	811	83	81	75-125	2	20	
Arsenic ug/		54.9	1000	1000	885	874	83	82	75-125	1	20	
Barium ug/	L	5520	1000	1000	6590	6540	107	103	75-125	1	20	
Beryllium ug/	Ŀ	10.7	1000	1000	799	787	79	78	75-125	1	20	
Cadmium ug/	L	92.2	1000	1000	1030	1000	93	91	75-125	3	20	
Chromium ug/	L	100	1000	1000	990	958	89	86	75-125	3	20	
Cobalt ug/	L	151	1000	1000	1060	1030	90	88	75-125	2	20	
Copper ug/	L	1100	1000	1000	2060	2030	96	93	75-125	1	20	
Iron ug/	L	340000	10000	10000	358000	358000	186	180	75-125	0	20	M6
Lead ug/	L	2160	1000	1000	3070	3070	90	91	75-125	0	20	
Manganese ug/	L	32900	1000	1000	34500	34500	160	152	75-125	0	20	M6
Molybdenum ug/	L į	6.8J	1000	1000	770	759	76	75	75-125	1	20	
Nickel ug/	<u>L</u>	341	1000	1000	1260	1240	92	90	75-125	2	20	
Selenium ug/	L	ND	1000	1000	800 ⁻	797	80	80	75-125	0	20	
Silver ug/	L	29.2	500	500	428	422	80	79	75-125	1	20	
Thallium ug/	L.	ND	1000	1000	662	648	66	65	75-125	2	20	2e,M1
Vanadium ug/	L	501	1000	1000	1420	1400	92	90	75-125	2	20	
Zinc ug/	L	11500	1000	1000	12600	12600	113	105	75-125	1	20	

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

QC Batch:

MPRP/20844

Analysis Method:

EPA 6010

QC Batch Method:

EPA 3010

Analysis Description:

6010 MET

Associated Lab Samples:

METHOD BLANK: 1113779

60135088016, 60135088017, 60135088018, 60135088019, 60135088020, 60135088021

Matrix: Water

Associated Lab Samples:

60135088016, 60135088017, 60135088018, 60135088019, 60135088020, 60135088021

Parameter	Units	Blank Result	Reporting Limit	Analyzed-	Qualifiers
Áluminum	ug/L	ND	75.0	12/20/12 13:41	
Antimony	ug/L	ND	10.0	12/20/12 13:41	
Arsenic	ug/L	ND	10.0	12/20/12 13:41	
Barium	ug/L	1.9ป	10.0	12/20/12 13:41	
Beryllium	ug/L	ND	1.0	12/20/12 13:41	
Cadmium	ug/L	ND:	5.0	12/20/12 13:41	
Chromium	ug/L	10.2	5.0	12/20/12 13:41	
Cobalt	ug/L	ND	5.0	12/20/12 13:41	
Copper	ug/L	1.2J	10.0	12/20/12 13:41	
Iron	ug/L	65.3	50:0	12/20/12 13:41	
Lead	ug/L	13.8	5.0	12/20/12 13:41	
Manganese	ug/L	0.91J	5.0	12/20/12 13:41	
Molybdenum	ug/L	1,7J	20.0	12/20/12 13:41	
Nickel	ug/L	5;2	5.0	12/20/12 13:41	
Selenium	ug/L	ND	15.0	12/20/12 13:41	
Silver	ug/L	ND	7.0	12/20/12 13:41	
Thallium	ug/L	ND	20.0	12/20/12 13:41	
Vanadium	ug/L	ND	10.0	12/20/12 13:41	
Zinc	ug/L	13.9J	50.0	12/20/12 13:41	

		Spike	LCS	LCS	% Rec	•
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Aluminum:	ug/L	10000	9730	97	80-120	
Antimony	ug/L	1000	951	95	80-120	
Arsenic	ug/L	1000	953	95	80-120	
Barium	ug/L	1000	958	96	80-120	
Beryllium	ug/Ŀ	1000	996	100	80-120	
Cadmium	ug/L	1000	961	96	80-120	
Chromium	ug/L	1000	1000	100	80-120	
Cobalt	ug/L	1000	996	100	80-120	
Copper	ug/L	1000	954	95 ⁻	80-120	
ron	ug/L	10000	9930	.99	80-120	
Lead	ug/L	1,000	1020	102	80-120	
Manganese	ug/L	1000	1010	101	80-120	
Molybdenum	ug/L	1000	991	99	80-120	
Nickel	ug/L	1000	1020	102	80-120	
Selenium	ug/L	1000	950	95	80-120	
Silver	ug/L	500	483	97	80-120	
Γhallium	ug/L	1000	1010	101	80-120	
Vanadium	ug/L	1000	987	99	80-120	

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

LABORATORY CONTROL SAMPLE: 1

Spike LCS LCS %
Conc. Result % Rec

% Rec Limits

Qualifiers

Parameter Zinc

1000

Units

ug/L

1030

103 80-120

MATRIX SPIKE & MATRIX	SPIKE DUPLICAT	E: 111378	31		1113782							
•			MS	MSD								
	60	135088016	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Aluminum	ug/L	20700	10000	10000	32700	34000	120	133	75-125	4	20	1e,M1
Antimony	ug/L	ND	1000	1000	802	839	80	84	75-125	4	20	
Arsenic	ug/L	36.1	1000	1000	883	927	85	89	75-125	5	20	
Barium	ug/L	1780	1000	1000	2620	2660	85	88	75-125	1	20	
Beryllium	ug/L	6:8	1000	1000	841	860	83	85	75-125	2	20	
Cadmium	ug/L	114	1000	1000	947	990	83	88	75-125	4	20	
Chromium-	ug/L	20.4	1.000	1000	844	849	82	83	75-125	1	20	
Cobalt	ug/L	94.2	1000	1000	924	965	83	87	75-125	4	20	
Copper :	ug/L	851	1000	1000	1720	1740	87	89	75-125	1	20	
Iron	ug/L	45100	10000	10000	53800	55800	86	107	75-125	4	20	
Lead	.ug/L	3060	1000	1000	3840	3970	78	91	75-125	3	20	
Manganese	ug/L	50400	1000	1000	40000	51100	-1039	75	75-125	24	20	D6,M1
Molybdenum	ug/L	23.8J	1.000	1000	872	915	85	89	75-125	5	20	
Nickel	ug/L	139	1000	1000	973	1010	83	87	75-125	4	20	
Selenium	ug/L	ND	1000	1000	37.2	44.3	3.	4	75-125	17	20	3e,M1
Silver	ug/L	8:9J	500	500	416	419	81	82	75-125	1	20	
Thallium	ug/L	ND	1000	1000	802	843	80	84	75-125	-5	20	
Vanadium	ug/L	157	1000	1000	969	976	81	82	75-125	1	20	
Zinc	ug/L	28300	1000	1000	28300	29000	2	74	75-125	3	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project:

Rico-Argentine Mine Site

Pace Project No.:

60135088

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

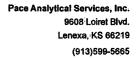
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1e	Post Digestion Spike Performed - 141% Recovery
2e	Post Digestion Spike Performed - 72.7% Recovery
3e	Post Digestion Spike Performed - 95.8% Recovery
В	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

Date: 12/21/2012 08;51 AM





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Rico-Argentine Mine Site

Pace Project No.: 60135088

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60135088016	P9RD1A121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088017	P9RD1B121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088018	P9RD1C121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088019	P9RD2A121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088020	P9RD2B121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088021	P9RD2C121206 LEACHATE	EPA 3010	MPRP/20844	EPA 6010	ICP/16910
60135088022	P9W1A121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088023	P9W1B121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088024	P9W1C121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088025	P9W2A121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088026	P9W2B121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088027	P9W2C121206 LEACHATE	EPA 3010	MPRP/20842	EPA:6010	ICP/16927
60135088028	P9W3A121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088029	P9W3B121206 LEACHATE	EPA 3010	MPRP/20842	EPA 6010	ICP/16927
60135088030	P9W3C121206 LEACHATE	EPA:3010	MPRP/20842	EPA 6010	ICP/16927



Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60135088

Client Name: BP Amec	Optional
Courier: Fed Ex 10 UPS USPS Client Commercial	Pace Other Proj Due Date:
Tracking #: On Coc Pace Shipping Lat	pel Used? Yes □ No ☑ Proj Name:
Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact	
Packing Material: Bubble Wrap □ Bubble Bags □ Fo	am □ None □ Other 1/2 PCC
Thermometer Used: (T-19) / T-194 Type of Ice: Web	Blue None Samples received on ice, cooling process has begun.
Cooler Temperature: 5.3	Date and initials of person examining contents: i2-8-12-BA
Temperature should be above freezing to 6°C	
Chain of Custody present: ☑ Yes □ No □	
Chain of Custody filled out: ☑Yes ☐No ☐	N/A 2.
Chain of Custody relinquished:	N/A 3.
Sampler name & signature on COC:	N/A 4.
Samples arrived within holding time:	N/A 5.
Short Hold Time analyses (<72hr):	N/A 6.
Rush Turn Around Time requested: □Yes ☑No □	N/A 7.
Sufficient volume:	N/A 8.
Correct containers used:	N/A
Pace containers used: ☐yes ☐No ☐	N/A 9,
Containers intact:	N/A 10.
Unpreserved 5035A soils frozen w/in 48hrs?	N/A 11.
Filtered volume received for dissolved tests?	N/A 12.
Sample labels match COC:	N/A
Includes date/time/ID/analyses Matrix: SL	13.
All containers needing preservation have been checked.	N/A
All containers needing preservation are found to be in compliance with EPA recommendation.	N/A 14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	Initial when Lot # of added completed preservative
Trip Blank present:	N/A
Pace Trip Blank lot # (if purchased):	15.
Headspace in VOA vials (>6mm): □Yes □No □	NIA
	16.
Project sampled in USDA Regulated Area:	IN/A 17. List State: CO
Client Notification/ Resolution: Copy COC to Client? Y	Field Data Required? Y / N
Person Contacted: Date/Time:	Temp Log: Record start and finish times when unpacking cooler, if >20 min,
Comments/ Resolution:	recheck sample temps. Start: 1040 Start:
	Start: (040 Start: End: (048 End:
Project Manager Review:	Date 12/10/12 Temp: Temp:



Laboratory Management Program LaMP Chain of Custody Record

	CARP ATTRICT	BP/ARC Pro	-	Ric	o-Ar	Argentine Mine Site Req Due Date (Lab Work Orde										A						Yes	No_X					
		Îna			400	Eneil) Ideoo		Pinn	Argen	tine I	line	·				- 1	 Como		C			ANE	C E&I, Inc.			
Lab Na				ļ			<u> </u>	Idress							-													
	Idress: 9608 Loiret Blvd., Lenexa, K	3 00218		i		· .	P Co				Color																	
Lab PN	The state of the s			1-				gency	:	.,	EPA F	kegio	n 8						Address: 10670 White Rock Road, Suite 100, Rancho Cordova, CA									
Lab Pr													Consultant/Contractor PM: Marc Lombardi															
	ipping Accent UPS # 733W87	Agents - American Control of Cont	;	·	-:			•			~ ~								Phon		916-6	·						
Lab Bo	ottle Order No: NA	<u> </u>	, , , , , , , , , , , , , , , , , , ,	Accounting Mode: Provision x OOC-BU OOC-RM Ema								Email	Repo	rt/ED	D To:	lynda	a.lomt	ardi@amec.	com									
Other I	Info: Wetland Pilot Scale Test			Sta	3e:	4-E	xecut				Spen								Invok	æ To:		BF	ARC	<u>x</u>		tractor		
BP/AR	C EBM: Anthony Brown			/	Ma	itrix		No. (Conta	ntainers / Preserva			vative	,	Rec				estec	Ana	lyse	3	,		Rep	ort Ty	e & QC Lo	evel
ÈBM P	hone: 714-228-6770							. g					-		.		ıtrix)									Sta	ndard _X_	
EBM E	mail: anthony.brown@bp.com	market or an arrangement of the			ŀ	ŀ		Containera	; t						ls-se 3)	ŏ	1 E								Full D	ata Pa	kage	
Lab No.	Sample Description	Date	Time	Soll / Solid	Water / Liquid	Alr / Vapor		Total Number of Con	Unpreserved	H ₂ SO ₄	HNO3	~	i		vcid Extractable Metals-s rotes (SW3020/6010B)	Leachate SOP 7.0 (Rematrix)	eachate SOP 8.0 (Org matrix)						MS/MSD	HOLD	Note: If samp	Cor ole not comment	nments ollected, indicases and single-s	trike out
		i		-	;≸	₹	-	_	_	£	Ī	오	-				3	_	-				†	모			nted sample de	
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	P9RD2a121206	12/6/2012	14:00	×	_	1	<u> </u>	1 1	×			L	<u> </u>		X	X							<u> </u>	<i>10-40</i>	Cr, Cu, Fe,	Mn, Mc	, Ni, Pb, Sb,	Se, Ti,
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Laboratory Management Program LaMP Chain of Custody Record

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EBM Email: and	thony.brown@bp.com		- Calendary and the control of the c	1			in and a		*					s 686	ŏ	(Org matrix)			:				Full Data P	ackage	
Lab No. Sar	mple Description	Date	Time	Soil / Soild	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO3	HCI			Acid Extractable Metals-see notes (SW3020/8010B)	Leachate SOP 7.0 (Rock matrix)	te SOP 8.0					MS/MSD	HOLD	Co Note: If sample not Sample' in commer and initial any prep	mments collected, indic its and single-s	ate "No trike out escription.
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January 17, 2013

Lynda Lombardi AMEC Environmental & Infrastructure, Inc. 10670 White Rock Road Suite 100 Rancho Cordova, CA 95670

RE: Project: Rico-Argentine Mine Site

Pace Project No.: 60136397

Dear Lynda Lombardi:

Enclosed are the analytical results for sample(s) received by the laboratory on January 05, 2013. The results relate only to the samples included in this report. Results contained within this report conform to the most current version of the TNI standards, BP LaMP Technical Requirements Revision 10.1, and any applicable Quality Assurance Project Plan (QAPP), or Work Plan unless otherwise narrated in the body of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Charles m. Wilson

Heather Wilson

heather.wilson@pacelabs.com Project Manager

Enclosures





CERTIFICATIONS

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Kansas Certification IDs

Ansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinols Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407-12-3 Utah Certification #: KS000212012-2





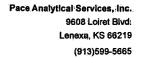
SAMPLE SUMMARY

Project:

Rico-Argentine Mine Site

Pace Project No.:

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60136397001	ROCK DRAIN IN 130104	Water	01/04/13 11:25	01/05/13 08:50
60136397002	ROCK DRAIN MP 130104	Water	01/04/13 12:35	01/05/13 08:50
60136397003	WETLAND OUT 130104	Water	01/04/13 13:00	01/05/13 08:50





SAMPLE ANALYTE COUNT

Project:

Rico-Argentine Mine Site

Pace Project No.:

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60136397001	ROCK DRAIN IN 130104	EPA:200.7	TDS	5
		EPA.200.7	SMW, TDS	5
		EPA 200.8	JGP	18
		EPA 200.8	JGP	18
		SM 5210B	NDL	1
		EPA:300.0	AJM	1
		SM 5310C	SEL	1
60136397002	ROCK DRAIN MP 130104	EPA 200,7	TDS	5
		EPA 200.7	SMW, TDS	5
		EPA 200.8	JGP	18
		EPA 200.8	JGP	1.8
		EPA 300.0	AJM	1:
60136397003	WETLAND OUT 130104	EPA 200,7	TDS	5
		EPA 200.7	SMW, TDS	5
		EPA 200.8	JGP	18
		EPA 200.8	JGP	18
		SM 5210B	NDL	1
,		EPA 300.0	AJM	1
		SM 5310C	SEL	1



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 200.7

Description: 200.7 Metals, Total

Client:

BP AMEC

Date:

January 17, 2013

General Information:

3 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21068

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1122744)
 - Calcium
- · MSD (Lab ID: 1122745)
 - Calcium

Additional Comments:



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 200.7

Description: 200.7 Metals, Dissolved

Client:

BP AMEC

Date:

January 17, 2013

General Information:

3 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21067

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1122740)
 - · Calcium, Dissolved
- MSD (Lab ID: 1122741)
 - · Calcium, Dissolved

Additional Comments:



PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 200.8

Description: 200.8 MET ICPMS

Client:

BP AMEC

Date:

January 17, 2013

General Information:

3 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC:limits with any exceptions noted below.

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21066

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1122736)
 - Manganese
- MSD (Lab ID: 1122737)
 - Manganese
 - Zinc

Additional Comments:

Analyte Comments:

QC Batch: MPRP/21066

B: Analyte was detected in the associated method blank.

- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
 - Silver

REPORT OF LABORATORY ANALYSIS

Page 7 of 30



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 200.8

Description: 200.8 MET ICPMS

Client:

BP AMEC

Date:

January 17, 2013

Analyte Comments:

QC Batch: MPRP/21066

B: Analyte was detected in the associated method blank.

- ROCK DRAIN MP 130104 (Lab ID: 60136397002)
 - Silver
- WETLAND OUT 130104 (Lab ID: 60136397003)
 - Silver
 - Molybdenum



Pace Analytical:Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 200.8

nescubno

Description: 200.8 MET ICPMS, Dissolved

Client:

BP AMEC

Date:

January 17, 2013

General Information:

3 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/21065

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60136397001

M1: Matrix splke recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1122733)
 - · Manganese, Dissolved

Additional Comments:

Analyte Comments:

QC Batch: MPRP/21065

- 1e: Dissolved result is greater than the total. Data was confirmed.
 - ROCK DRAIN MP 130104 (Lab.ID: 60136397002)
 - · Manganese, Dissolved
- B: Analyte was detected in the associated method blank.
 - ROCK DRAIN IN 130104 (Lab ID: 60136397001)
 - Silver, Dissolved

REPORT OF LABORATORY ANALYSIS

Page 9 of 30



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS-66219 (913)599-5665

PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 200:8

Description: 200.8 MET ICPMS, Dissolved

Client:

BP AMEC

Date:

January 17, 2013

Analyte Comments:

QC Batch: MPRP/21065

B: Analyte was detected in the associated method blank.

- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
 - · Thallium, Dissolved
- ROCK DRAIN MP 130104 (Lab ID: 60136397002)
 - · Silver, Dissolved
 - · Lead, Dissolved
 - · Thallium, Dissolved
- WETLAND OUT 130104 (Lab ID: 60136397003)
 - Silver, Dissolved
 - Zinc, Dissolved



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa; KS 66219 (913)599-5665

PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

SM 5210B

Description: 5210B BOD, 5 day

Client:

BP AMEC

Date:

January 17, 2013

General Information:

2 samples were analyzed for SM 5210B. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with SM 5210B with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:



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PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

EPA 300.0

Description: 300.0 IC Anions 28 Days

Client:

BP AMEC

Date:

January 17, 2013

General Information:

3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

PROJECT NARRATIVE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Method:

SM 5310C Description: 5310C TOC

Client:

BP AMEC

Date:

January 17, 2013

General Information:

2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: WETA/23123

B: Analyte was detected in the associated method blank.

- ROCK DRAIN IN 130104 (Lab ID: 60136397001)
 - Total Organic Carbon

This data package has been reviewed for quality and completeness and is approved for release.



Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Sample: ROCK DRAIN IN 130104	Lab ID: 60136397	001 Collected	f: 01/04/13	3 11:25	Received: 01/	05/13 08:50 M	atrix: Water	
		Report						
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
200.7 Metals, Total	Analytical Method: El	PA 200.7 Prepa	ration Meth	od: EP/	A 200.7			
Calcium	239000 ug/L	200	71.6	2	01/07/13 10:30	01/15/13 09:33	7440-70-2	M1
Iron	2760 ug/L	100	34:4	2	01/07/13 10:30	01/15/13 09:33	7439-89-6	
Magnesium	18800 ug/L	100	34.4	2	01/07/13 10:30	01/15/13 09:33	7439-95-4	
Potassium	21300 ug/L	1000	128	2	01/07/13 10:30	01/15/13 09:33	7440-09-7	
Sodium	12700 ug/L	1000	80.2	2	01/07/13 10:30	01/16/13 12:13	7440-23-5	
200.7 Metals, Dissolved	Analytical Method: El	PA 200.7 Prepa	ration Meth	od: EP/	A 200.7			
Calcium, Dissolved	242000 ug/L	100	35.8	1	01/07/13 10:30	01/16/13 11:58	7440-70-2	D9,M1
Iron, Dissolved	ND ug/L	50.0	17.2	1	01/07/13 10:30	01/16/13 11:58	7439-89-6	
Magnesium, Dissolved	20700 ug/L	100	34.4	2	01/07/13 10:30	01/11/13 11:56	7439-95-4	D9
Potassium, Dissolved	21,600 ug/L	500	64.1	1	01/07/13 10:30	01/16/13 11:58	7440-09-7	D9
Sodium, Dissolved	12300 ug/L	500	40,1	1		01/16/13 11:58		
200.8 MET ICPMS	Analytical Method: El	PA 200.8 Prepa	ration Meth	od: EP/	A 200.8			
Aluminum	270 ug/L	50.0	5.2	1	01/07/13 10:30	01/15/13 13:12	7429-90-5	
Antimony	0.28J ug/L	1.0	0.035	1	01/07/13 10:30	01/15/13 13:12	7440-36-0	
Arsenic	0.62J ug/L	1.0	0.14	1		01/15/13 13:12		
Barium	22.5 ug/L	1.0	0.085	1		01/15/13 13:12		
Beryllium	0.30J ug/L	0.50	0.066	1		01/15/13 13:12		
Cadmium	12.5 ug/L	0.50	0,097	i		01/15/13 13:12	-	
Chromium	1.2 ug/L	1.0	0.11	1		01/15/13 13:12		
Sobalt	2.5 ug/L	1:0	0.048	1		01/15/13 13:12		
Copper	46:0 ug/L	1.0	0.45	i		01/15/13 13:12		
Lead .	5.6 ug/L	1.0	0.051	1		01/15/13 13:12		
Manganese	1820 ug/L	1.0	0.23	1		01/15/13 13:12		M1
Vialigatiese Violybdenum	20.7 ug/L	1.0	0.23	1		01/15/13 13:12		141 (
Nickel	_	1.0	0.10	1		01/15/13 13:12		
	3.0 ug/L	1.0	0.35	1		01/15/13 13:12		
Selenium	ND ug/L							D
Silver	0.19J ug/L	0.50	0.059	1		01/15/13 13:12		В
Thallium	0.12J ug/L	1.0	0.022	1		01/15/13 13:12		
Vanadium ~	0.38J ug/L	1.0	0.27	1		01/15/13 13:12		114
Zinc	2390 ug/L	10:0	1.6	1		01/15/13 13:12	7440-66-6	M 1
200.8 MET ICPMS, Dissolved	Analytical Method: Ei	PA 200.8 Prepa	ration Meth	od: EP/				
Aluminum, Dissolved	10.7J ug/L	50.0	5.2	1		01/15/13 13:54		
Antimony, Dissolved	0.26J ug/L	1.0	0.035	1		01/15/13 13:54		
Arsenic, Dissolved	ND ug/L	1.0	0.14	1		01/15/13 13:54	•	
Barium, Dissolved	19.4 ug/L	1.0	0.085	1	01/07/13 10:30	01/15/13 13:54		
Beryllium, Dissolved	ND ug/L	0.50	0.066	1	01/07/13 10:30	01/15/13 13:54	7440-41-7	
Cadmium, Dissolved	10.4 ug/L	0:50	0.097	1	01/07/13 10:30	01/15/13 13:54	7440-43-9	
Chromium, Dissolved	0:54J ug/L	1.0	0.11	1	01/07/13 10:30	01/15/13 13:54	7440-47-3	
Cobalt, Dissolved	2.3 ug/L	1.0	0.048	1	01/07/13 10:30	01/15/13 13:54	7440-48-4	
Copper, Dissolved	2,2 ug/L	1.0	0.45	1	01/07/13 10:30	01/15/13 13:54	7440-50-8	
Lead, Dissolved	ND ug/L	1.0	0.051	1	01/07/13 10:30	01/15/13 13:54	7439-92-1	
Manganese, Dissolved	1710 ug/L	1.0	0.23	1	01/07/13 10:30	01/15/13 13:54		M1
Molybdenum, Dissolved	19,7 ug/L	1.0	0,16	1	01/07/13 10:30	01/15/13 13:54		

Date: 01/17/2013 01:06 PM

REPORT OF LABORATORY ANALYSIS

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Sample: ROCK DRAIN IN 130104	Lab ID:	60136397001	Collected	d: 01/04/1	3 11:25	Received: 01/	05/13 08:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200:8 MET ICPMS, Dissolved	Analytical I	Method: EPA 2	00:8 Prepa	ration Met	od: EP	A 200:8			
Nickel, Dissolved	2.6 ug	j/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:54	7440-02-0	
Selenium, Dissolved	ND ug	!/L	1.0	0.35	1	01/07/13 10:30	01/15/13 13:54	7782-49-2	
Silver, Dissolved	0.18J ug	ı/L	0.50	0,059	1	01/07/13 10:30	01/15/13 13:54	7440-22-4	В
Thallium, Dissolved	0.14J ug	J/L	1.0	0.022	1	01/07/13 10:30	01/15/13 13:54	7440-28-0	B
Vanadium, Dissolved	ND ug	_J /L	1.0	0.27	1	01/07/13 10:30	01/15/13 13:54	7440-62-2	
Zinc, Dissolved	1970 ug	ı/L	10.0	1.6	1	01/07/13 10:30	01/15/13 13:54	7440-66-6	
5210B BOD, 5 day	Analytical I	Method: SM 52	10B Prepa	ration Meth	od: SM	5210B			
BOD, 5 day	ND m	g/L	2.0	2.0	1	01/05/13 10:09	01/10/13 15:54		
300.0 IC Anions 28 Days	Analytical I	Method: EPA 3	0.00						
Sulfate	639 m	g/L	50.0	3.0	50		01/09/13 15:17	14808-79-8	
5310C TOC	Analytical I	Method: SM 53	10C						
Total Organic Carbon	0.81J m	g/L	1.0	0.092	1		01/08/13 17:55	7440-44-0	В



Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Sample: ROCK DRAIN MP 130104	Lab ID: 6	0136397002 Colle	ected: 01/04/	13 12:35	Received: 01/	05/13 08:50 M	atrix: Water	
		Report	·					
Parameters	Results	Units Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
00.7 Metals, Total	Analytical M	ethod: EPA 200.7 Pi	reparation Me	thod: EP	A 200.7			
Calcium	252000 ug/l	_ 20	71.6	2	01/07/13 10:30	01/15/13 09:38	7440-70-2	
ron	285 ug/l	_ 10	00 34.4	2	01/07/13 10:30	01/15/13 09:38	7439-89-6	
Magneslum	21800 ug/l	. 10	00 34.4	2	01/07/13 10:30	01/15/13 09:38	7439-95-4	
Potasslum	23000 ug/l	_ 100	00 128	2	01/07/13 10:30	01/15/13 09:38	7440-09-7	
Sodlum	13800 ug/l	_ 100	00 80.2	2	01/07/13 10:30	01/16/13 12:19	7440-23-5	
200.7 Metals, Dissolved	Analytical M	ethod: EPA 200.7 Pi	reparation Me	thod: EP	A 200.7			
Calcium, Dissolved	238000 ug/l	_ 10	00 35.8	1	01/07/13 10:30	01/16/13 12:00	7440-70-2	
ron, Dissolved	134 ug/l	. 50	.0 17.2	1	01/07/13 10:30	01/16/13 12:00	7439-89-6	
Magnesium, Dissolved	22400 ug/l	. 10	00 34.4	2	01/07/13 10:30	01/11/13 12:03	7439-95-4	D9
Potassium, Dissolved	22600 ug/l		00 64.1	1	01/07/13 10:30	01/16/13 12:00	7440-09-7	
Sodium, Dissolved	13400 ug/l				01/07/13 10:30	01/16/13 12:00	7440-23-5	
200.8 MET ICPMS	Analytical M	ethod: EPA 200.8 Pa	reparation Me	thod: EP	A 200.8			
Aluminum	44.8J ug/l	_ 50	.0 5.2	. 1	01/07/13 10:30	01/15/13 13:29	7429-90-5	
Antimony	0.26J ug/l		.0 0.035		01/07/13 10:30	01/15/13 13:29	7440-36-0	
Arsenic	0.59J ug/l		.0 0.14	1	01/07/13 10:30	01/15/13 13:29	7440-38-2	
Barium	35:2 ug/l		.0 0.085			01/15/13 13:29		
Beryllium .	ND ug/l		0.066	1	01/07/13 10:30	01/15/13 13:29	7440-41-7	
Cadmium	1.3 ug/l			· ·		01/15/13 13:29		
Chromium.	0.45J ug/l		.0 0.11	1	01/07/13 10:30	01/15/13 13:29	7440-47-3	
Cobalt	0.51J ug/l	· ·	.0 0.048	1	01/07/13 10:30	01/15/13 13:29	7440-48-4	
Copper	2.7 ug/l		.0 0.45	1	01/07/13 10:30	01/15/13 13:29	7440-50-8	
_ead	0.54J ug/l	_ 1	.0 0.051	1	01/07/13 10:30	01/15/13 13:29	7439-92-1	
Manganese	3230 ug/l		.0 0.23	1	01/07/13 10:30	01/15/13 13:29	7439-96-5	
Molybdenum	15.5 ug/l		.0 0.16	1	01/07/13 10:30	01/15/13 13:29	7439-98-7	
Nickel	2.4 ug/l	. 1	.0 0.35	i 1	01/07/13 10:30	01/15/13 13:29	7440-02-0	
Selenium	ND ug/l		.0 0.35	1	01/07/13 10:30	01/15/13 13:29	7782-49-2	
Silver	0.19J ug/l		0.059	1	01/07/13 10:30	01/15/13 13:29	7440-22-4	В
Thallium	0.078J ug/l		.0 0.022	1	01/07/13 10:30	01/15/13 13:29	7440-28-0	
Vanadium	0:87J ug/l	. 1	.0 0.27	1	01/07/13 10:30	01/15/13 13:29	7440-62-2	
Zinc	1230 ug/l	1.0	.0 1.6	1	01/07/13 10:30	01/15/13 13:29	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical M	ethod: EPA 200.8 Pi	reparation Me	thod: EP	A 200.8			
Aluminum, Dissolved	16.2J ug/l	_ 50	.0 5.2	1	01/07/13 10:30	01/15/13 14:10	7429-90-5	
Antimony, Dissolved	0.29J ug/l	,	.0 0.035	1	01/07/13 10:30	01/15/13 14:10	7440-36-0	
Arsenic, Dissolved	0.46J ug/l		.0 0.14	1	01/07/13 10:30	01/15/13 14:10	7440-38-2	
Barlum, Dissolved	37.3 ug/l		.0 0,085	1	01/07/13 10:30	01/15/13 14:10	7440-39-3	D9
Beryllium, Dissolved	ND ug/l				01/07/13 10:30	01/15/13 14:10	7440-41-7	
Cadmium, Dissolved	0.57 ug/l				01/07/13 10:30	01/15/13 14:10	7440-43-9	
Chromium, Dissolved	1.4 ug/l		,0 0.11		01/07/13 10:30	01/15/13 14:10	7440-47-3	D9
Cobalt, Dissolved	0.49J ug/l		.0 0.048): 1 [01/07/13 10:30	01/15/13 14:10	7440-48-4	
Copper, Dissolved	1.3: ug/l		.0 0.45		01/07/13 10:30	01/15/13 14:10	7440-50-8	
_ead, Dissolved	0.20J ug/l		.0 0.051	1	01/07/13 10:30	01/15/13 14:10	7439-92-1	'B
Manganese, Dissolved	3950 ug/l		.0 0.23		01/07/13 10:30	01/15/13 14:10		1e
Molybdenum, Dissolved	15.7 ug/l		.0 0.16		01/07/13 10:30	01/15/13 14:10	7439-98-7	:D9

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REPORT OF LABORATORY ANALYSIS

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Sample: ROCK DRAIN MP 130104	Lab ID: 601363970	02 Collecte	Collected: 01/04/13 12:35			/05/13 08:50 M	atrix: Water	
Parameters ·	Results Units	Report- Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200:8 MET ICPMS, Dissolved	Analytical Method: EP	A 200.8 Prepa	ration Meth	od: EP	A 200.8			*
Nickel, Dissolved	2.5 ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:10	7440-02-0	D9
Selenium, Dissolved:	ND ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:10	7782-49-2	
Silver, Dissolved	0,20J ug/L	0,50	0.059	1'	01/07/13 10:30	01/15/13 14:10	7440-22-4	В
Thallium, Dissolved	0.063J ug/L	10	0.022	1	01/07/13 10:30	01/15/13 14:10	7440-28-0	В
Vanadium, Dissolved	0.86J ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 14:10	7440-62-2	
Zinc, Dissolved	1030 ug/L	10,0	1.6	1	01/07/13 10:30	01/15/13 14:10	7440-86-6	
300:0 IC Anions 28 Days	Analytical Method: EP	A 300.0						
Sulfate	640 mg/L	50.0	3.0	50		01/09/13 15:35	14808-79-8	



Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Sample: WETLAND OUT 130104	Lab ID:	60136397003	Collected	3: 01/04/1	3 13:00	Received: 01/	05/13 08:50 M	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
00.7 Metals, Total	Analytical	Method: EPA 2	00.7 Pre <u>p</u> a	ration Meti	nod: EP/	A 200.7	•		
Calcium	281000 u	ig/L	200	71.6	2	01/07/13 10:30	01/15/13 09:40	7440-70-2	
ron	89.9J u	ıg/L	100	34.4	2	01/07/13 10:30	01/15/13 09:40	7439-89-6	
/lagnesium	26800 u	ıg/L	100	34.4	2	01/07/13 10:30	01/15/13 09:40	7439-95-4	
Potassium	30300 u	ıg/L	1000	128	2	01/07/13 10:30	01/15/13 09:40	7440-09-7	
Sodium	13300 u	ıg/L	1000	80.2	2	01/07/13 10:30	01/16/13 12:20	7440-23-5	
00.7 Metals, Dissolved	Analytical	Method: EPA 2	00:7 Prepa	ration Meth	iod: EP/	A 200.7			
Calcium, Dissolved	306000 u	ıg/L	100	35.8	4	01/07/13 10:30	01/16/13 12:02	7440-70-2	D9
ron, Dissolved	17.2J u	ıg/L	50.0	17.2	1.	01/07/13 10:30	01/16/13 12:02	7439-89-6	
Magnesium, Dissolved	29000 u	ıg/Ľ	100	34.4	2	01/07/13 10:30	01/11/13 12:05	7439-95-4	D9
Potassium, Dissolved	34000 u	g/L	500	64.1	1	01/07/13 10:30	01/16/13 12:02	7440-09-7	D9
Sodium, Dissolved	14400 u	ıg/L	500	40.1	1	01/07/13 10:30	01/16/13 12:02	7440-23-5	D9
00.8 MET ICPMS	Analytical	Method: EPA 2	00.8 Prepa	ration Meth	nod: EP/	A 200.8			
Aluminum	76.4 u	ıg/L	50.0	5.2	1	01/07/13 10:30	01/15/13 13:33	7429-90-5	
Antimony	0.62 J u	ıg/L	1.0	0.035	1	01/07/13 10:30	01/15/13 13:33	7440-36-0	
Arsenic	10.8 u	g/L	1.0	0.14	1	01/07/13 10:30	01/15/13 13:33	7440-38-2	
Barium	114 u	•	1.0	0.085	1	01/07/13 10:30	01/15/13 13:33	7440-39-3	
Beryllium	ND u		0.50	0.066	1		01/15/13 13:33		
Cadmium	0.81 u		0:50	0.097	1	01/07/13 10:30			
Chromium	0.71J u	-	1.0	0.11	1		01/15/13 13:33		
Cobalt	0:30J u	-	1.0	0.048	1	01/07/13 10:30			
Copper	ND u	-	1.0	0.45	1	01/07/13 10:30	01/15/13 13:33		
.ead	0:15J u	_	1.0	0.051	1		01/15/13 13:33		
Manganese	4800 u	-	1.0	0.23	1		01/15/13 13:33		
Molybdenum	0.21J u	•	1.0	0.16	1	01/07/13 10:30			B.
lickel	ND u	~	1.0	0.35	1		01/15/13 13:33		
Selenium	ND u	~ .	1.0	0.35	1		01/15/13 13:33		
Silver	0.098J u	•	0.50	0.059	1	01/07/13 10:30			B.
Thallium	ND u	•	1.0	0.022	1	01/07/13 10:30	01/15/13 13:33		В
/anadium	2.3 u	-	1.0	0.022	1	01/07/13 10:30	01/15/13 13:33		
Linc	271 u	~	10.0	1.6	1	01/07/13 10:30			
200.8 MET ICPMS, Dissolved		Method: EPA 2	00.8 Prepa	ration Meth	od: EP/	\ 200.8			
Aluminum, Dissolved	46.6J u		50.0	5.2	1	01/07/13 10:30	01/15/13 14:14	7429-90-5	
Antimony, Dissolved	0.86J u	-	1.0	0.035	1	01/07/13 10:30	01/15/13 14:14		
Arsenic, Dissolved	8.2 u	-	1.0	0.14	1	01/07/13 10:30			
Barium, Dissolved	117 u		1.0	0:085	1	01/07/13 10:30			D9
Beryllium, Dissolved	ND u	•	0.50	0:066	1	01/07/13 10:30			
Cadmium, Dissolved	ND u	•	0.50	0.097	1	01/07/13 10:30			
Chromium, Dissolved	0.85J u	-	1.0	0.037	1	01/07/13 10:30			
Cobalt, Dissolved	0.000 u		1.0	0:048	1		01/15/13 14:14		
Copper, Dissolved	0.103 u	-	1.0	0.45	1		01/15/13 14:14		
ead, Dissolved	ND u	7	1.0	0.051	1		01/15/13 14:14		
.cau, widoviyou	ND U	.β. r.							
Manganese, Dissolved	4990 u	na/I	1.0	0.23	1	01/07/13 10:30	01/15/13 14:14	7420 00.5	D9

Date: 01/17/2013 01:06 PM

REPORT OF LABORATORY ANALYSIS

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

*								
Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytica	l Method: EPA 2	:00.8 Prepa	ration Meti	nod: EP	A 200.8			
ND (ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:14	7440-02-0	
ND :	ug/L	1.0	0.35	1	01/07/13 10:30	01/15/13 14:14	7782-49-2	
0.082J	ug/L	0.50	0.059	1	01/07/13 10:30	01/15/13 14:14	7440-22-4	В
ND i	ug/L	1.0	0.022	1	01/07/13 10:30	01/15/13 14:14	7440-28-0	
1.6	ug/L	1.0	0.27	1	01/07/13 10:30	01/15/13 14:14	7440-62-2	
3.5J (ug/L	10.0	1,6	1	01/07/13 10:30	01/15/13 14:14	7440-66-6	В
Analytica	Method: SM 52	210B Prepa	ration Meth	nod: SM	5210B			
112	mg/L	2.0	2,0	1	01/05/13 10:19	01/10/13 15:57		
Analytica	l Method: EPA 3	0.00				•		
600 1	mg/L	50.0	3.0	50		01/09/13 15:52	14808-79-8	
Analytica	I Method: SM 5	310C						
28.1	mg/L	1.0	0.092	1		01/08/13 17:27	7440-44-0	
	Analytica Analytica Analytica Analytica Analytica	Analytical Method: EPA 2 ND ug/L ND ug/L 0.082J ug/L ND ug/L 1.6 ug/L 3.5J ug/L Analytical Method: SM 52 112 mg/L Analytical Method: EPA 3 600 mg/L	Analytical Method: EPA 200.8 Prepa ND ug/L 1.0 ND ug/L 1.0 0.082J ug/L 0.50 ND ug/L 1.0 1.6 ug/L 1.0 3.5J ug/L 10.0 Analytical Method: SM 5210B Prepa 112 mg/L 2.0 Analytical Method: EPA 300.0 600 mg/L 50.0 Analytical Method: SM 5310C	Analytical Method: EPA 200.8 Preparation Method: ND ug/L 1.0 0.35 ND ug/L 1.0 0.35 0.082J ug/L 0.50 0.059 ND ug/L 1.0 0.022 1.6 ug/L 1.0 0.27 3.5J ug/L 10.0 1.6 Analytical Method: SM 5210B Preparation Method: SM 5210B Preparation Method: SM 5210B Analytical Method: EPA 300.0 600 mg/L 50.0 3.0 Analytical Method: SM 5310C	Analytical Method: EPA 200.8 Preparation Method: EPA ND ug/L 1.0 0.35 1 ND ug/L 1.0 0.35 1 0.082J ug/L 0.50 0.059 1 ND ug/L 1.0 0.022 1 1.6 ug/L 1.0 0.27 1 3.5J ug/L 10.0 1.6 1 Analytical Method: SM 5210B Preparation Method: SM 112 mg/L 2.0 2.0 1 Analytical Method: EPA 300.0 600 mg/L 50.0 3.0 50 Analytical Method: SM 5310C	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 ND ug/L	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 ND ug/L	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 ND ug/L 1.0 0.35 1 01/07/13 10:30 01/15/13 14:14 7440-02-0 ND ug/L 1.0 0.35 1 01/07/13 10:30 01/15/13 14:14 7782-49-2 0.082J ug/L 0.50 0.059 1 01/07/13 10:30 01/15/13 14:14 7440-22-4 ND ug/L 1.0 0.022 1 01/07/13 10:30 01/15/13 14:14 7440-22-4 ND ug/L 1.0 0.27 1 01/07/13 10:30 01/15/13 14:14 7440-28-0 1.6 ug/L 1.0 0.27 1 01/07/13 10:30 01/15/13 14:14 7440-62-2 3.5J ug/L 10.0 1.6 1 01/07/13 10:30 01/15/13 14:14 7440-66-6 Analytical Method: SM 5210B Preparation Method: SM 5210B 112 mg/L 2.0 2.0 1 01/05/13 10:19 01/10/13 15:57 Analytical Method: EPA 300.0 600 mg/L 50.0 3.0 50 01/09/13 15:52 14808-79-8 Analytical Method: SM 5310C





Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

EPA 200.7

QC Batch:

MPRP/21068

Analysis Method:

EPA 200.7

QC Batch Method:

Analysis Description:

200,7 Metals, Total

Associated Lab Samples:

60136397001, 60136397002, 60136397003

METHOD BLANK: 1122742

Matrix: Water

Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	 ug/L	ND ND	200	01/15/13 09:29	
Iron	ug/L	ND	100	01/15/13 09:29	
Magnesium	ug/L	ND	100	01/15/13 09:29	
Potassium	ug/Ĺ	ND	1000	01/15/13 09:29	
Sodium	ug/L	ND	1000	01/16/13 12:06	

LABORATORY CONTROL SAMPLE: 1122743

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	20000	18700	93	85-115	
Iron	ug/L	20000	19100	96	85-115	
Magnesium	·ug/L	20000	18000	90	85-115	
Potassium	ug/L	20000	19000	95	85-115	
Sodium	ug/L	20000	1,9600	98	85-115	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 11227	44		1122745							
	60	136397001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Calcium	ug/L.	239000	10000	10000	244000	258000	56	188	70-130	5	9	M1
Iron	ug/L	2760	10000	10000	12100	12800	93	100	70-130	6	10	
Magnesium	ug/L	18800	10000	10000	27100	29800	84	110	70-130	9	9	
Potassium	ug/L	21300	10000	10000	30700	31900	94	106	70-130	4	7	
Sodium	ug/L	12700	10000	10000	23100	23300	105	106	70-130	1	8	





Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

QC Batch:

MPRP/21067

Analysis Method:

EPA 200.7

QC Batch Method:

EPA 200.7

Analysis Description:

200.7 Metals, Dissolved

Associated Lab Samples:

60136397001, 60136397002, 60136397003

METHOD BLANK: 1122738

Matrix: Water

Associated Lab Samples:

60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium, Dissolved	ug/L	ND ND	100	01/16/13 11:51	
Iron, Dissolved	ug/L	ND	50.0	01/16/13 11:51	
Magnesium, Dissolved	ug/L	ND	50.0	01/11/13 11:52	
Potassium, Dissolved	ug/L	ND	500	01/16/13 11:51	
Sodium, Dissolved	ug/L	'ND	500	01/16/13 11:51	

LABORATORY CONTROL SAMPLE: 1122739

Parameter	:Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	ug/L	10000	10100	101	85-115	
Iron, Dissolved	ug/L	10000	10200	102	85-115	
Magnesium, Dissolved	ug/L	10000	10100	101	85-115	
Potassium, Dissolved	ug/L	10000	9910	.99	85-115	
Sodium, Dissolved	ug/L	10000	10400	104	85-115	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 11227	40		1122741		.,					
		136397001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	01
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Calcium, Dissolved	ug/L	242000	10000	10000	255000	249000	133	66	70-130	3	9	M1
Iron, Dissolved	ug/L	ND	10000	10000	10000	9850	100	98	70-130	2	10	
Magnesium, Dissolved	ug/L	20700	10000	10000	29600	30000	89	94	70-130	2	9	
Potassium, Dissolved	ug/L	21600	10000	10000	31700	31500	102	100	70-130	1	7	
Sodium, Dissolved	ug/L	12300	10000	10000	22800	22500	105	103	70-130	1	8	





Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

QC Batch:

MPRP/21066

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

Matrix: Water

200.8 MET

Associated Lab Samples: 60136397001, 60136397002, 60136397003

METHOD BLANK: 1122734

Associated Lab Samples: 60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	100	01/15/13 13:04	
Antimony	ug/L	ND	2.0	01/15/13 13:04	
Arsenic	ug/L	ND	2.0	01/15/13 13:04	
Barium	ug/L	0.22J	2.0	01/15/13 13:04	
Beryllium	ug/L	ND	1.0	01/15/13 13:04	
Cadmium	ug/L	ND	1.0	01/15/13 13:04	
Chromium	ug/L	ND	2:0	01/15/13 13:04	
Cobalt	ug/L	ND	2.0	01/15/13 13:04	
Copper	ug/L	ND	2.0	01/15/13 13:04	
Lead	ug/L	ND	2.0	01/15/13 13:04	
Manganese	ug/L	NĎ	2.0	01/15/13 13:04	
Molybdenum	ug/L	ND	2.0	01/15/13 13:04	
Nickel	ug/L	ND	2.0	01/15/13 13:04	
Selenium	ug/L	ND	2.0	01/15/13 13:04	
Silver	ug/L	0.18J	1.0	01/15/13 13:04	
Thallium	ug/L	ND	2.0	01/15/13 13:04	
Vanadium	ug/L	ND	2.0	01/15/13 13:04	
Zinc	ug/L	ND	20.0	01/15/13 13:04	

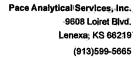
LABORATORY CONTROL SAMPLE	1122735					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Aluminum	ug/L	2000	1860	93	85-115	
Antimony	ug/L	80	80.8	101	85-115	
Arsenic	ug/L	80	78.8	98	85-115	
Barium	ug/L	80	77.4	97	85-115	
Beryllium	ug/L	80	76.2	95 [:]	85-115	
Cadmium	ug/L	80	78.9	99	85-115	
Chromium	ug/L	80	77.3	97	85-115	
Cobalt	ug/L	80	76,3	95	85-115	
Copper	ug/L	80	77.6	97	85-115	
Lead	ug/L	80	76.3	95	85-115	
Manganese	ug/L	80	78.0	:97	85-115	
Molybdenum	ug/L	80	79:4	99	85-115	
Nickel	ug/L	80	78.4	.98	85-115	
Selenium	ug/Ŀ	80	78:6	98	85-115	
Silver	ug/L	40	37.6	94	85-115	
Thallium	ug/L	80	76.2	95	85-115	
Vanadium	ug/L	80	78.1	498	85-115	
Zinc	ug/L	200	206	103	85-115	

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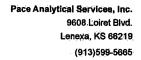
Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

MATRIX SPIKE & MATRIX :	SPIKE DUPLICAT	E: 11227	36		1122737							
			MS	MSD								
	60	136397001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Aluminum	ug/L	270	1000	1000	1170	11,90	90	92	70-130	1	20	
Antimony	ug/L	0.28J	40	40	40.4	40.3	100	100	70-130	0	20	
Arsenic	ug/L	0.62J	40	40	39.7	39.2	:98	96	70-130	1	20	
Barium	ug/L	22.5	40	40	59.7	58.6	93	90	70-130	2	20	
Beryllium	ug/L	0.30J	40	40	35.3	35.6	88	88	70-130	1	20	
Cadmium	ug/L	12.5	40	40	50.8	50.2	96	94	70-130	.1	20	
Chromium	ug/L	1.2	40	40	39.3	38.9	95	94	70-130	1	20	•
Cobalt	ug/L	2.5	40	40	39,6	38.8	93	91	70-130	2	20	
Copper	ug/L	46.0	40	40	85.8	80.0	99	85	70-130	7	20	
_ead	ug/L	5:6	40	40	45.1	44.2	99	96	70-130	2	20	
Manganese	ug/L	1820	40	40	1880	1840	168	42	70-130	3	20	M1
Molybdenum	ug/L	20.7	40	40	62.2	61.1	104	101	70-130	2	20	
Nickel	ug/L	3.0	40	40	39.6	38.9	92	90	70-130	2	20	
Selenium	ug/L	ND	40	40	36.5	36.4	91	91	70-130	0	20	
Silver	ug/L	0.19J	20	20	18.2	18.0	90	89	70-130	1	20	
Thallium	ug/L	0.12J	40	40	39.0	38.6	97	96	70-130	1	20	
/anadium	ug/L	0.38J	40	40	39.5	39.0	98	97	70-130	1	20	
Zinc	ug/L	2390	100	100	2500	2460	108	64	70-130	2	20	М1





Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

QC Batch:

MPRP/21065

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

60136397001, 60136397002, 60136397003

METHOD BLANK: 1122730

Matrix: Water

Associated Lab Samples:

60136397001, 60136397002, 60136397003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ŊD -	100	01/15/13 13:46	
Antimony, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Arsenic, Dissolved	ug/L	· ND	2.0	01/15/13 13:46	
Barium, Dissolved	ug/L	0.22J	2,0	01/15/13 13:46	
Beryllium, Dissolved	ug/L	ŀND	1.0	01/15/13 13:46	
Cadmium, Dissolved	ug/L	ND	1,0	01/15/13 13:46	
Chromium, Dissolved	ug/L	٩ND	2,0	01/15/13 13:46	
Cobalt, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Copper, Dissolved	ug/L	:ND	2.0	01/15/13 13:46	
Lead, Dissolved	ug/L	ND	2,0	01/15/13 13:46	
Manganese, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Molybdenum, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Nickel, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Selenium, Dissolved	ug/L	'ND	2.0	01/15/13 13:46	
Silver, Dissolved	ug/L	0.18,1	1.0	01/15/13 13:46	
Thallium, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
vanadium, Dissolved	ug/L	ND	2.0	01/15/13 13:46	
Zinc, Dissolved	uġ/Ĺ	ŃD	20.0	01/15/13 13:46	

LABORATORY CONTROL SAM	MPLE: 1122731					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	2000	1950	97	85-115	
Antimony, Dissolved	ug/L	80	80.3	100	85-115	
Arsenic, Dissolved	ug/L	80	76.6	96	85-115	
Barium, Dissolved	ug/L	80	76.2	95	85-115	
Beryllium, Dissolved	ug/L	80	79.8	100	85-115	
Cadmium, Dissolved	ug/L	80	79.6	99	85-115	
Chromium, Dissolved	ug/L	80	77.7	97	85-115	
Cobalt, Dissolved	ug/L	80	75.9	95	85-115	
Copper, Dissolved	ug/L	80	75.9	95	85-115	
Lead, Dissolved	ug/L	80	77.1	96	85-115	
Manganese, Dissolved	ug/L	80	78.9	99	85-115	•
Molybdenum, Dissolved	ug/L	80	79.7	100	85-115	
Nickel, Dissolved	ug/L	80	76.2	95	85-115	
Selenium, Dissolved	ug/L	80	79.0	. 99	85-115	
Silver, Dissolved	ug/L	40	37.5	94	85-115	
Thallium, Dissolved	ug/L	80	76.1	95	85-115	
Vanadium, Dissolved	ug/L	80	78.0	9.7	85-115	
Zinc; Dissolved	ug/L	200	208	104	85-115	

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REPORT OF LABORATORY ANALYSIS

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

MATRIX SPIKE & MATRIX S	PIKE DUPLICAT	E: 11227	32		1122733			-				
	00.	100007004	MS	MSD	140	1100		1400	n/ 25			
Danama Asin		136397001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Aluminum, Dissolved	·ug/L	10.7J	1000	1000	939	934	93	92	70-130	1	20	
Antimony, Dissolved	ug/L	0.26J	40	40	40.1	39.9	100	99	70-130	1	20	
Arsenic, Dissolved	ug/L	ND	40	40	38.4	38.5	96	96	70-130	0	20	
Barium, Dissolved	ug/L	19.4	40	40	56.6	57.4	93	95	70-130	1	20	
Beryllium, Dissolved	ug/L	ND	40	40	35.8	35.1	89	88	70-130	2	20	
Cadmium, Dissolved	ug/L	10.4	40	40	48.8	48.8	96	96	70-130	0	20	
Chromium, Dissolved	ug/L	0.54J	40	40	37.8	38.2	93	94	70-130	1	20	
Cobalt, Dissolved	ug/L	2.3	40	40	38.4	38.4	90	90	70-130	0	20	
Copper, Dissolved	ug/L	2.2	40	40	37.3	37.4	88	88	70-130	0	20	
Lead, Dissolved	ug/L	ND	40	40	38.6	38.9	96	97	70-130	1	20	
Manganese, Dissolved	ug/L	1710	40	40	1750	1770	102	145	70-130	1	20	M1
Molybdenum, Dissolved	ug/L	19.7	40	40	60.8	61.3	103	104	70-130	1	20	
Nickel, Dissolved	ug/L	2.6	40	40	38.3	38.7	89	90	70-130	1	20	
Selenium, Dissolved	ug/L	ND	40	40	37.2	36:6	93	91	70-130	2	20	
Silver, Dissolved	ug/L	0.18J	20	20	17.9	18.1	89	89	70-130	1	20	
Thallium, Dissolved	ug/L	0.14J	40	40	38.5	39.1	96	97	70-130	2	20	
Vanadium, Dissolved	ug/L	:ND	40	40	38.5	38.5	96	96-	70-130	0	20	
Zinc, Dissolved	ug/L	1970	100	100	2080	2080	106	108	70-130	0	20	





Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

QC Batch:

WET/39130

Analysis Method:

SM 5210B

QC Batch Method:

SM 5210B

Analysis Description:

Associated Lab Samples:

60136397001, 60136397003

5210B BOD, 5 day

METHOD BLANK: 1122361

Matrix: Water

Associated Lab Samples:

60136397001, 60136397003

Blank

Reporting

Parameter

Units

Result

Limit

Qualifiers

BOD, 5 day

mg/L

ND

2.0 01/10/13 14:57

Analyzed

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

1122362

Units

Spike Conc.

LCS

LCS

% Rec

BOD, 5 day

mg/L

198

Result 176 % Rec

Limits 85-115 Qualifiers

SAMPLE DUPLICATE: 1122363

60136275001 Units Result

Dup Result

RPD

89

Max **RPD**

17

Qualifiers

BOD, 5 day

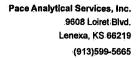
mg/L

111

108

2

Date: 01/17/2013 01:06 PM





Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

QC Batch:

WETA/23119

Analysis Method:

EPA 300.0

QC Batch Method:

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples:

60136397001, 60136397002, 60136397003

METHOD BLANK: 1123005

Matrix: Water

Associated Lab Samples:

60136397001, 60136397002, 60136397003

Units

Units

Blank Result Reporting Limit

Analyzed

Qualifiers

Sulfate

mg/L

ND

1.0 01/09/13 12:31

LABORATORY CONTROL SAMPLE: 1123006

Parameter

Parameter

Parameter

Spike Conc.

MS

250

LCS Result

LCS % Rec % Rec Limits

Sulfate

mg/L

Units

mg/L

4.9

99 90-110 Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

600

1123008

789

MSD Result

845

MS

76

MSD

% Rec

Max RPD RPD Qual

Sulfate

60136397003 Spike Result Conc.

Spike Conc.

MSD

250

MS Result

% Rec

% Rec

Limits 61-119

10

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Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

QC Batch:

WETA/23123

SM 5310C

Analysis Method:

SM 5310C

QC Batch Method:

Analysis Description:

5310C Total Organic Carbon

Associated Lab Samples:

METHOD BLANK: 1123022

Matrix: Water

Associated Lab Samples:

60136397001, 60136397003

60136397001, 60136397003

Blank Result

Reporting

Limit

Analyzed

Qualifiers

Total Organic Carbon

mg/L

0.45J

01/08/13 16:30

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Parameter

1123023

Units

Units

Spike

LCS

LCS

% Rec Limits

Total Organic Carbon

mg/L

Conc.

Result

% Rec 109

80-120

Qualifiers

MATRIX SPIKE SAMPLE:

1123024

60136433001

Spike

5.4

MS

MS

% Rec

Total Organic Carbon

Units mg/L

Result ND Conc.

Result 6.0 % Rec

Limits 80-120 Qualifiers

SAMPLE DUPLICATE:

Parameter

Units

60136397001 Result

Dup Result

RPD

Max RPD

Qualifiers

Total Organic Carbon

mg/L

0.81J

1.8

25

112

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Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

QUALIFIERS

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1.	Discolund rocult	is greater than the total	Data was confirmed

B Analyte was detected in the associated method blank.

D9 Dissolved result is greater than the total. Data is within laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Rico-Argentine Mine Site

Pace Project No.:

60136397

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60136397001	ROCK DRAIN IN 130104	EPA 200.7	MPRP/21068	EPA 200.7	ICP/17039
60136397002	ROCK DRAIN MP 130104	EPA 200.7	MPRP/21068	EPA 200.7	ICP/17039
60136397003	WETLAND OUT 130104	EPA 200.7	MPRP/21068	EPA 200.7	ICP/17039
60136397001	ROCK DRAIN IN 130104	EPA 200.7	MPRP/21067	EPA 200.7	ICP/17038
60136397002	ROCK DRAIN MP 130104	EPA 200.7	MPRP/21067	EPA 200.7	ICP/17038
60136397003	WETLAND OUT 130104	EPA 200.7	MPRP/21067	EPA 200.7	ICP/17038
60136397001	ROCK DRAIN IN 130104	EPA 200.8	MPRP/21066	EPA 200.8	ICPM/1955
60136397002	ROCK DRAIN MP 130104	EPA 200.8	MPRP/21066	EPA 200.8	ICPM/1955
60136397003	WETLAND OUT 130104	EPA 200.8	MPRP/21066	EPA 200.8	ICPM/1955
60136397001	ROCK DRAIN IN 130104	EPA 200.8	MPRP/21065	EPA 200.8	ICPM/1954
60136397002	ROCK DRAIN MP 130104	EPA 200.8	MPRP/21065	EPA 200.8	ICPM/1954
60136397003	WETLAND OUT 130104	EPA 200.8	MPRP/21065	EPA 200.8	ICPM/1954
60136397001	ROCK DRAIN IN 130104	SM 5210B	WET/39130	SM 5210B	WET/39207
60136397003	WETLAND OUT 130104	SM 5210B	WET/39130	SM 5210B	WET/39207
60136397001	ROCK DRAIN IN 130104	EPA 300.0	WETA/23119		
60136397002	ROCK DRAIN MP 130104	EPA 300.0	WETA/23119		
60136397003	WETLAND OUT 130104	EPA 300.0	WETA/23119		
60136397001	ROCK DRAIN IN 130104	SM 5310C	WETA/23123		
60136397003	WETLAND OUT 130104	SM 5310C	WETA/23123		

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REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt ESI Tech Spec Client

WO#:60136397

Client Name: BP Amec	Optional
Courier: Fed Ex □ UPS ☑ USPS □ Client □ Commercial □ Pace □ Other □ AAVISIS	Proj Due Date:
Tracking #: 1Z 733 ₩87 22 1005 7484 Pace Shipping Label Used? Yes No d	Proj Name:
Contact Seel of Cooley/Pox Present: Yes M No I Seals intact: Yes M No I	
Packing Material: Bubble Wrap □ Bubble Bags □ Foam □ None □ Other M	
Thermometer Used: (T-19) / T-194 Type of Ice: Wet Blue None Samples received	on ice, cooling process has begun.
Corder Temporature: 2:3 (circle one) Date and init	tials of person examining
Temperature should be above freezing to 6°C	7113.64
Chain of Custody present: ☑Yes □No □N/A 1.	
Chain of Custody filled out: □Yes □No □N/A 2.	
Chain of Custody relinquished: Myes \(\sum No \(\sum N/A \) 3.	
To State I	
Sampler name & signature on coc.	
Samples arrived within holding time.	
Short Hold Time analyses (<72hr):	
Rush Turn Around Time requested:	
Sufficient volume: Yes No NA 8.	
Correct containers used:	
Pace containers used: ✓ Yes □No □N/A 9.	
Containers intact: ☑Yes □No □N/A 10.	
Unpreserved 5035A soils frozen w/in 48hrs?	
Filtered volume received for dissolved tests?	
Sample labels match COC:	
Includes date/time/ID/analyses Matrix: WT 13.	
All containers needing preservation have been checked.	
All containers needing preservation are found to be in compliance with EPA recommendation.	
Exactions: VOA coliform/TOC 08G WI-DRO (water).	Lot # of added
Phenolics Trip Blank present: Yes No M/A	JOSOT VALITY CONTRACTOR OF THE PROPERTY OF THE
Pace Trip Blank lot # (if purchased): 15. Headspace in VOA vials (>6mm):	The second secon
16.	
Project sampled in USDA Regulated Area: Yes No MN/A 17, List State:	
Client Notification/ Resolution: Copy COC to Client? Y N Field Data Required?	Y / N
Person Contacted: Date/Time: When	p Log: Record start and finish times nunpacking cooler, if >20 min,
	eck sample temps.
Star	
End	End:
Project Manager Review: PMM IA) Date: 1/7/13 Ten	np: Temp:



Laboratory Management Program Lahr Chain of Custody Record

Req Due Date (mm/dd/yy):

BP/ARC Project Name: Rico-Argentine Mine Site

Pag	e	_ of	
Rush TAT:	Yes	No	<u> </u>

7	A BP affiliated company	BP/ARC Fa	cility No:					. <u>.</u>				·		٠	Lab	Wor	k Ord	ler N	umbe	er:							
Lab Na	me: Pace Analytical Laboratories	, Inc.		BP/	ARC	Faci	ity A	ddres	s:.	Rico	-Arge	ntine i	Mine			,	71	- ·	Cons	ultant	/Contra	actor.		AME	C E&I, Inc.	<u> </u>	
Lab Ad	dress: 9608 Loiret Blvd., Lenexa, K	S 66219	* * *.	City	ity, State, ZIP Code: Rico, Colorado 81332				81332						Cons	ultant	/Contra	actor	Proje	ct No:	x No: SA11161302.200A						
Lab PM	t: Heather Wilson		or a way to see a	Lea	d Regulatory Agency: U				U.S.	EPA I	Regio	n 8	n 8				Addr	ess:	10670	Whit	te Ro	ck Ro	ad, Suite 100, Ran	cho Cordov	a, CA		
Läb Ph	one: (913) 563-1407			Cali	fomi	a Glo	bal I	D No.:		NA				•					Cons	ultant	/Contra	actor	PM:	Marc	Lombardi		
Lab Shi	ipping Accent: UPS #733W87		· · · · · · · · · · · · · · · · · · ·	Enfo	os Pr	ropos	al No);		Door	ML-00	01 (V	VR 256	704)		. 745			Phon	e:	916-6	36-32	200		110		
ab Bo	ttle Order No: NA			Acc	ounti	ing M	ode:		Pro	vision	x	00	C-BU		00	C-RIV	l		Emai	Repo	orVEDE) To:	lynda	a.lomi	bardi@amec.com		
Other Ir	nfo: Wetland Pilot Scale Test		ne Was	Stag	je:	4-E)	kecn	te	A	ctivity:	Sper	nd						(invoid	œ To:	- 211	BP/	ARC	×	Contracto		<u> </u>
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EBM PI	hone: 714-228-6770		***		1		,	_	,		Π,	Π		ľ				.#	ř.	2. 3					Sta	andard _X	_
SBM Er	mail: anthony.brown@bp.com				1			age a							1	ľ		ì	,						Fuli Data Pa	ckage	-
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APPENDIX F

Baseline Matrix Sampling Technical Memorandum December 7, 2012



Technical Memorandum

To:

Spencer Archer, AMEC

Marc Lombardi, AMEC

Project: SA11161302.200A

From:

Hallie Bevan Simpson, AMEC

cc:

Andre Sobolewski, AMEC

Tel:

(720) 284-4043

Lynda Lombardi, AMEC Ron Borrego, AMEC

Date:

December 7, 2012

Abby Cazier, AMEC

Subject:

Baseline Matrix Sampling

Constructed Wetland Pilot Scale Test

Rico-Argentine Mine Site – Rico Tunnels, Operable Unit OU01

Dolores County, Colorado

This technical memorandum describes the baseline matrix sampling conducted for the Constructed Wetland Pilot Scale Test at the Rico-Argentine Mine Site (site). Compliant with the St. Louis Tunnel Discharge Constructed Wetland Pilot Scale Test Work Plan (Work Plan) and associated Sampling and Analysis Plan (SAP), baseline matrix sampling was completed on Thursday, December 6, 2012. Matrix samples were collected from the rock drain and wetland cells and submitted for laboratory analysis of total metals to Pace Analytical Laboratories ("Pace") in Lenexa, Kansas. Sampling coincided with wetland liner repair and re-plumbing activities, for which power and water to the rock drain and wetland were shut off and water levels in the rock drain and wetland were lowered.

SAMPLE PREPARATION AND METHODS

Matrix sampling was conducted in accordance with the site Task Specific Health and Safety Plan (TSHASP) and the following site-specific Standard Operating Procedures (SOPs):

- SOP 1 Field Documentation and Sample Handling
- SOP 2 Sample Collection Techniques and Data Collection Strategies
- SOP 4 Equipment Decontamination
- SOP 7 Rock Drain Matrix Field Sampling and Laboratory Procedures
- SOP 8 Wetland Organic Matrix Field Sampling and Laboratory Procedures

Sample locations were evenly spaced and flagged along transects. Samples were collected using a metal scoop and placed on a decontaminated acrylic sheet. Photo documentation was completed for each sample, and samples were then transferred into sealable plastic bags labeled with the sample ID. The acrylic sheet was sprayed with deionized water in a fine-point squirt bottle to flush any remaining sample material into the sample bag. Sample bags were sealed and placed in tertiary bags in a cooler. The acrylic sheet and metal scoop were decontaminated, sample locations were backfilled with surrounding matrix material, and sampling was continued at the next location.



Technical Memorandum Baseline Matrix Sampling - Constructed Wetland Pilot Scale Test December 7, 2012 Page 2 of 3

The following naming structure was used to generate sample IDs:

- "P9" referring to Pond 9 as the primary site location;
- "RD" or "W" referring to the rock drain or wetland cell;
- "1", "2", or "3" the transect number; transects ran north-south, with transect 1 being the western-most transect:
- "a", "b", or "c" the point along the transect; the northernmost point along each transect was "a" and the southernmost was "c" or "d":
- "121206" the sample collection date, December 6, 2012;
- Examples: *P9RD1a121206* and *P9W3c121206*.

ROCK DRAIN SAMPLING

Six samples were collected from the rock drain along two transects. Sample locations were spaced approximately 4.5 feet from the west and east walls and from eachother. Sample locations were spaced approximately 7.5 feet from the north and south walls and from eachother. Approximately 500 grams of rock was collected from a depth of approximately six inches below the rock surface at each location.

Photo documentation of rock drain samples is included in Attachment A. The following are the sample locations and corresponding matrix samples submitted to Pace for laboratory analysis.

Sample Location Name

Laboratory Sample ID

- RD1a
- RD1b
- RD1c
- RD2a
- RD2b
- RD2c

- P9RD1a121206
- P9RD1b121206
- P9RD1c121206
- P9RD2a121206
- P9RD2b121206
- P9RD2c121206

WETLAND SAMPLING

Sample locations were identified along three transects within the wetland cell. A total of 12 sample locations were spaced approximately 3.25 feet from the west and east walls and from eachother. Sample locations were spaced approximately 14 feet from the north and south walls and from eachother. Approximately 500 grams of wetland matrix was collected from a depth of approximately six inches below the bottom of the mulch layer at nine of the locations. At the three southern-most "d" locations, near the wetland outlet, the matrix material was frozen and could not be sampled. A strong organic odor was detected at all of the wetland cell sampling locations, with the "a" locations exibiting the strongest odor and the "c" locations exhibiting a somewhat less strong odor.

Photo documentation of wetland samples is included in Attachment B. The following are the sample locations and corresponding matrix samples submitted to Pace for laboratory analysis.



Technical Memorandum

Baseline Matrix Sampling – Constructed Wetland Pilot Scale Test

December 7, 2012

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• W1a	 P9W1a121206
• W1b	 P9W1b121206
• W1c	 P9W1c121206
• W1d	 no sample collected
• W2a	 P9W2a121206

W2bP9W2b121206W2cP9W2c121206

W2dno sample collectedW3aP9W3a121206

W3b • P9W3b121206 W3c • P9W3c121206

W3d • no sample collected

POST-IMPLEMENTATION SAMPLING

Sample Location Name

Post-implementation matrix samples are anticipated to be collected from the rock drain and wetland cells at the end of the 2013 Spring/Summer Pilot Test Period. No additional matrix sampling is identified in the Work Plan or associated SAP.

Laboratory Sample ID



ATTACHMENT A

Rock Drain Baseline Matrix Sampling Photo Log



Technical Memorandum

Baseline Matrix Sampling – Constructed Wetland Pilot Scale Test

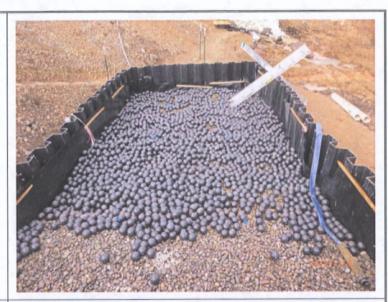
December 7, 2012

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Rock Drain

Sampling Locations

- View looking north toward the inlet.
- Sample locations spaced approximately 4.5 feet from the west and east walls and from eachother.
- Sample locations spaced approximately 7.5 feet from the north and south walls and from eachother.



Rock Drain Sampling Locations

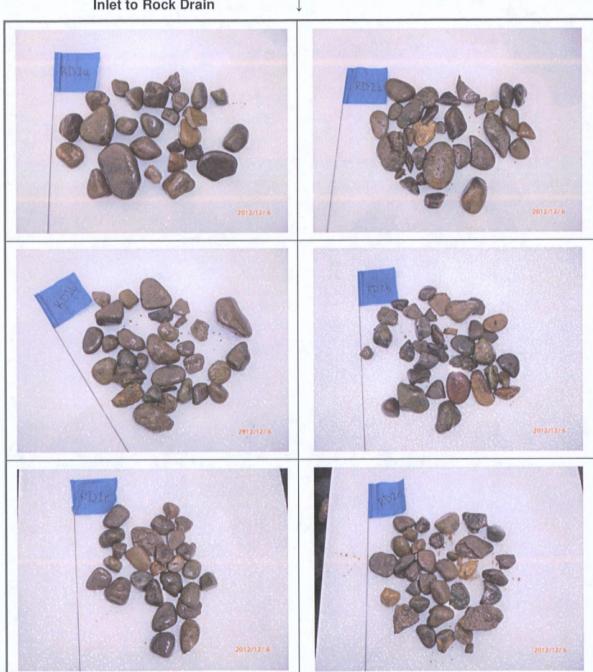
 Samples were collected approximately 6 inches below the rock surface.





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Inlet to Rock Drain



To Wetland Cell



ATTACHMENT B

Wetland Baseline Matrix Sampling Photo Log



Technical Memorandum

Baseline Matrix Sampling – Constructed Wetland Pilot Scale Test

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Wetland Cell Sampling Locations

- View looking south toward the outlet.
- Sample locations spaced approximately 3.25 feet from the west and east walls and from eachother.
- Sample locations spaced approximately 14 feet from the north and south walls and from eachother.



Wetland Cell Sampling Locations

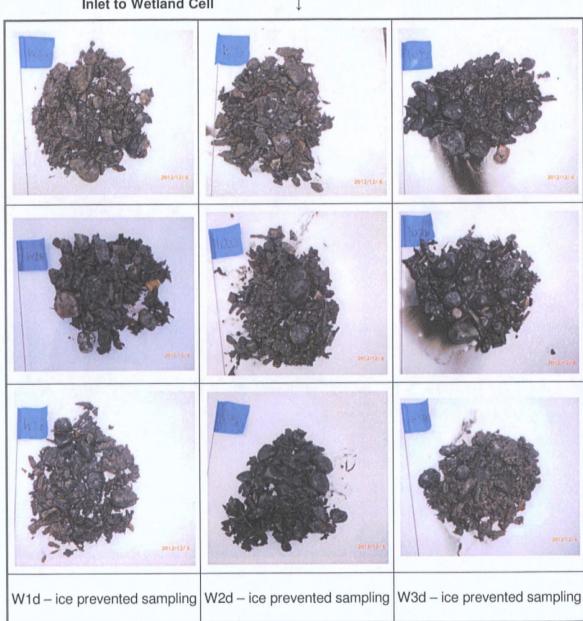
 Samples collected approximately 6 inches below the bottom of the mulch layer.





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Inlet to Wetland Cell



Outlet